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No. 1.

Original Papers.

REPLANTATION.

BY DR. L. A. TEAGUE, SAN FRANCISCO, CAL.

[Read before the Pacific Coast Dental Congress, July 15, 1897.]

THE subject of my thesis is one that presents ample scope for discussion *pro* and *con.*, and I expect that there are those who will dissent from me as to its practicability, as there have been since the operation of replantation was first practiced from Paré down to this day, but I want to have the subject thoroughly ventilated and know that there are those present who can give valuable opinions from every standpoint. My first duty before going further will be to thank the one who has been instrumental in bringing before me the benefits and possibilities of replantation, Dr. Lundborg; for it was only after witnessing his clinics and the results, that I became a convert to the practice. Now I am an enthusiast, and will endeavor to give you reasons why.

There is no better way of learning a thing thoroughly than to meet with difficulties in relation thereto and then to successfully overcome them; thus the cause of my remarks. About two years ago a gentleman came to my office presenting for treatment a superior lateral incisor that had been under treatment by one of our most competent practitioners for some time, but the result of this treatment was an absolute failure to arrest or cure the disease. Knowing that where he had failed I should be likely to fail also, I suggested the extraction and replantation of

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the tooth, but was met with a decided negative, so was perforce compelled to resort to the usual *modus operandi*. After a week or more of medicaments, with no appearance of mending, I, in a fit of disgust, reiterated my opinion anent the replantation, and, the gentleman consenting, I extracted the tooth. You know how you feel when you have given an opinion upon a rather obscure subject, and developments have verified it as correct, so did I feel when I found about a quarter of an inch of barbed wire projecting through the apical foramen of this tooth, for my diagnosis of the trouble as being incurable *in situ* was verified as correct, even to the layman's eye, and my satisfaction at the solution of the trouble was quite keen; fancy the anguish it saved me and the suspicion of incompetency that my patient would have felt after further prolonged efforts resulting in failure and the loss of the tooth as a *finale*. I must be pardoned for pointing gleefully at the offending wire and intimating that my eye was not even second to the cathode ray. However, I now saw my way clear for a cure of the disease, and went to work thoroughly satisfied with myself, the tooth and the wire.

I do not as a rule replant a tooth until the second day at least after the extraction, preferring to wait and let the inflamed condition of the socket pass away. And, following my rule in this case, I told the gentleman to call in about that time for his tooth. In the meantime I soaked it in a bichloride solution for forty-eight hours, and then filled the root with cement, the crown cavity with gold, also the apex, after cutting away a small portion. The reason for cutting off a part of the root at the apex is because of an idea that the socket will better accommodate the root when replaced, and it removes a rough irritant. Upon the return of the patient two days after, I replaced the tooth, causing a slight pain at the time by the pressure required to get it in place, then ligated the tooth to its fellow adjoining, and dismissed the patient with the parting injunction to call in three or four days for examination. But the days passed into months before I again saw him, and then

when asked about the tooth he said that it had never troubled him since, and was as firm and solid as any tooth in his mouth. Since then I have never felt so much alarmed at the breaking off of a nerve broach in such a way that it could not be got out again with the tooth *in situ*.

And now I must, for further illustration, mention another case that had its educating features, and which I think some members of the Stomatological Club will remember. A boy of about sixteen or seventeen years came under my care, about or a little after the time of the first-mentioned case. His teeth were sadly the worse from neglect, and a superior second bicuspid was and had been affected by a blind abscess for some time. Having extracted some roots and accustomed him to the beauties of extraction I then extracted the bicuspid, washed out the socket with an antiseptic solution, put the tooth away in a small bottle of the same, and left nature to take its course for four days. Then having filled the root with cement, and a large crown cavity with amalgam, I cut away, and filled over the apex with gold, and proceeded to replace the tooth. I was astounded at the degree of contraction that must have taken place since the tooth had been extracted four days before, for it took an enormous pressure to carry it home to its place, and it was not until I had gone too far to retreat that I discovered the cause, and I think when I tell you of it and my decision, it will meet with your sympathetic approval. I had not made note of the side of the tooth that was decayed, and had a vague impression that it was the anterior proximal, and so, without looking at the cusps or general outline of the crown, I placed the tooth in the socket in a reversed position from that in which nature had first planted it. I had gotten it almost home, and was instructing the youth to close his teeth upon it when I made the discovery. Then I halted for consideration, and soon came to the conclusion that it was much better to have the filling under direct observation and keep the sound part of the tooth in the inaccessible position, but my real reason was my dislike to inflict any more pain on the youth who

bore it too heroically to excite in me anything but the most kindly consideration. The tooth was almost in position, and I carried it there by the addition of more pressure. It was now as solid as a rock, and by grinding off the lingual or what was the buccal cusp slightly, it appeared and felt a perfect success. A week after that I presented the case to the Stomatological Club, taking care not to mention the mistake in setting. At that time it was just as solid as ever, and was pronounced by the members a complete success in every way. The accidental turning of the tooth wrong side foremost I have since considered lucky, for it demonstrated to my satisfaction the fact that the closer the fit in the socket the better, for in this case I did not ligate or support in any way, but left it to become solidified of its own accord, which it did beautifully.

Now what I consider as the *sine qua non* of success in the treatment of a tooth that is loose in its socket, and seems as if it were set in an elastic or spring bed, is the removal of the cause of these conditions of unrest, and, as I am very skeptical as to the possibility of its complete eradication with the tooth *in situ*, I remove the tooth and then proceed to the removal of the cause, which, as a general rule, will be found to be a deposit of hard granulated dark calculus, so closely adherent to the root or roots of the tooth as to render it, in my opinion, almost impossible of complete removal with the tooth *in situ*. We must remember that if a particle of tartar is left on the root it will be sure to serve as a nucleus for further accumulation; and this is, I believe, the reason why so few of us have met with success in the treatment of pyorrhea alveolaris. I hope to, and think I shall hereafter, be able to cope with that disease with more success than formerly; but I place my greatest value upon this method for the facility it presents of getting at a troublesome abscess.

DISCUSSION.

Dr. Lundborg.—Mr. President, it is very pleasing to hear the remarks made by our friend Dr. Teague in regard to replantation, though the Doctor did not seem to fathom

the idea that I advanced at a clinic in the Stomatological Club. I told the patient I would like to try the experiment of replantation, removing the tooth and also the pericementum. She assented and I extracted two centrals; afterward removing the pericementum I filled the canals and cavities and then replaced them. Previously I had the patient visit my office, and I had taken an impression of the mouth and made what I call a skeleton retaining plate. I was then prepared for the lady when she came to our Stomatological Club. I removed the teeth, as I said, and put them back again. I had the retaining splint all ready, and after the teeth were replanted it seemed to work admirably. I have not seen the patient since, but I have heard from Dr. Teague that the teeth are doing remarkably well. I consider it most important to retain all the teeth we possibly can. I have removed and replanted teeth for many years. An instance occurred some time ago that may be interesting. In working on a central incisor for a young lady a broach was unfortunately broken off and remained at the apex of the root. It disturbed me very much, as I didn't seem to be able to get it out. I didn't say anything to the young lady, but taking an impression of her mouth I prepared my splint, and when she came back I was all ready. I worked about the mouth awhile and then I suddenly removed the tooth. She didn't think anything of it, and I put it right back again, adjusting the splint and it was all right. I have never heard of any trouble from it. I consider replantation a success. Of course, when I remove a tooth in that manner I am very careful to have everything prepared and in proper shape.

Dr. Whitney.—I would ask Dr. Lundborg if he has found the roots of these teeth absorbed after four or five years?

Dr. Lundborg.—Well, Dr. Whitney, I have not, because I have never had an opportunity to extract them to see.

Dr. Whitney.—Did they extract themselves?

Dr. Lundborg.—No. I believe about eight, nine or ten years ago I commenced this practice of replantation, and I am very glad to say that in no single instance so far have I had one come back.

Dr. Whitney.—From necessity my patients had to return to me, I being the only practitioner on the Island for a long time. I found that several of those teeth after they had been replanted four or five years became absorbed and loose, just as in implantation. I have had them remain from eight to fifteen years, but these were the exceptions. Were it not for the fact that I have observed this absorption I should practice it very often, as Drs. Teague and Lundborg have said. But I am afraid to do it. I am very glad to hear that there is possibly a way of putting them in so that absorption does not take place. In my practice it has been the exception that they remained and did good service longer than four or five years.

Dr. Platt.—Mr. Chairman, I only arise to say a word in commendation of the paper and the method it advocates. It seems to me that in many cases it is the only certain way we have of relieving pain. There are certain cases of blind abscess for which I know of no other method of cure. I know of cases in my own experience where the teeth are doing good service, have been in for over six years, and show no signs of failing. I think it can be practiced in cases not only of sound roots, but where perhaps the pulp is diseased the teeth may be extracted, the pulp-chamber filled and the teeth replanted. I would like to state a little case that occurred in my practice. A patient for whom I had been working met with an accident which was very peculiar. She and her brother (she was a young girl) were scuffling over the possession of a camera on the side of a bank, resulting in her being struck in the mouth by the camera, knocking out the lower right central, the left lateral, cuspid and bicuspid. The girl came to me on Monday, the teeth having been knocked out on Sunday. I gave the patient ether, as she was in pretty bad condition, and I replanted three teeth—the right central, left central and bicuspid. I had previously cut into the teeth and removed the pulps and filled with cement and gold, filling the apex of the root with a piece of gold wire, trimmed to a point and driven in the canal, and smoothed the end of the root. On Tuesday morning they were fortunate enough to find the other cuspid in the road, where I suppose several hundred people

had been traveling over it since Sunday morning. They brought the tooth over, and Tuesday afternoon I replanted it. Two weeks after the time I replanted the last tooth soreness was almost all gone, inflammation had subsided and the teeth were in excellent condition.

Dr. D. J. Wait.—Mr. Chairman, I had a case in point. A lady came to me with a central incisor abscessed. I don't know what made it abscess; never did know. She would not let me treat it. So I extracted it and told her to come back the next morning. I didn't know how to transplant at that time, so just put it in glycerine and the next day when she came in replanted it. About six years and four months after that she came in. Meantime she had been getting proud, of course. Both centrals were yellow and homely, and protruding. She wanted me to take them out and put in a bridge or plate, which I refused to do. She was red-headed and determined, so went out. A day or two afterwards when she came in, she had both centrals in her hand. She had been over the road to someone a little worse than myself. One central came out all right. The replanted one he had broken off. I packed the socket of the latter with cotton for a few hours before I could see what to do, then observed a piece of root perhaps an eighth of an inch long, and the gold wire that I had put in six or seven years before sticking down through it. I obtained of a jeweler a pair of little pliers small enough to get hold of the wire and pulled it out, but the root didn't come. I afterwards drilled a hole, put in a little screw and pulled the root out.

Dr. Lundborg.—Mr. Chairman, you will pardon me a moment more. When I have a tooth or teeth that have pericemental trouble, that seem to be very dark, I take an impression of the teeth in their normal position. Then I make one of those little splints I have spoken of and let the patient wear it after the tooth has been replanted. In case they should go away, or should not come to see me, I think it is far better that they should have the splint, because I wish to keep the tooth in position. I think it is better in many respects, because patients do not seem to be always careful in using and keeping the teeth in proper shape. Being made of thin rubber I find there is no objec-

tion to the splint. It does not look bad, nor is it disagreeable. You can depend on it as being much easier than ligaturing.

Dr. Cox.—*Dr. Whitney* asked if any of us had any failures in this operation. I want to say I never have had a failure in replanting a tooth, but I have replanted but one. That was a good many years ago. A lady came in and wanted a lower molar with buccal cavity extracted; there was also a small cavity on the buccal surface of the second bicuspid. I didn't know much about the extraction of teeth, but thought if she wanted the tooth out I would take it out. I began to pull and she began to scream. Finally she got out of the chair to the floor. I hung on until we got pretty nearly across the office. I don't know how it was, but I pulled out two teeth, the first molar and second bicuspid. She arose from the floor, saying "Doctor, you have pulled two teeth." "Yes," I answered, "they were both decayed and needed pulling, and I thought I would make one job of it." At which she replied, "Nothing like a man understanding his business." I then thought I would put the tooth back, so I filled the cavity with a little amalgam and slipped the tooth into its place. Twelve years afterward the tooth was apparently sound and as good as any of the rest.

Dr. Cool.—*Mr. President*, this is a subject in which I am indeed very much interested. I believe I am almost a crank about replanting, transplanting and implanting. As has been illustrated to-night, away back in 1797 they knew something regarding transplantation, and replantation of teeth, performed these operations and must have performed them successfully. The advancement made since 1797 has been in regard to the persistent vitality of the pericemental membrane. It was my pleasure in the '70s to meet at the Pacific Medical College, now the Cooper Medical College, a man named W. Finley Thompson. Old-timers will remember him very well. He left San Francisco, went to Europe and created a furore in London by replanting and transplanting teeth. His method in all cases of abscessed teeth was to extract the tooth, remove the apex of the root, sterilize the tooth, adjust a small gold tip on the amputated

portion, and fill the canal with a gold tube; by the latter precaution he was able to have a perfect drainage beyond the root of the tooth into the abscess cavity. But why should we extract a tooth to do away with an abscess at the end of the root? [Applause.] Right here I would state that in all cases of replantation, transplantation or implantation, do not leave the pulp-chambers open. Remove the contents and fill them. If you do not the tooth will darken.

The operation of trephination through the alveolar process is much more simple and much less painful than the operation of extracting and replantation. The operator, who is thoroughly acquainted with the anatomy of the parts, knowing where the root of a tooth should be, or can approximate its position, with the pathological conditions and the symptoms which are shown so plainly in abscessed teeth, should be able to reach the end of that root through the alveolar plate. Now, I am speaking from personal experience and from experiments and tests that have been made, I will say, almost monthly in the Stomatological Club. The diseased portions of the teeth can be reached and removed, as well as the carious or necrosed tissue, and such conditions can be treated as any surgeon would treat an ordinary osseous abscess. I call attention to this as being a surgical operation that is practiced daily by surgeons upon bones in other parts of the body, and it may be practiced by oral surgeons within the mouth. The abscess cavities are evacuated, every portion of the pus is removed, the broken-down tissue is cut away and the cavity kept open until cure has taken place. Why, when such an operation can be so simply performed, should a tooth be replanted unless it has been removed by accident?

In regard to splints, I spoke of them in my paper last Tuesday afternoon. I admire the splint introduced by Dr. Lundborg, but I have found that silk ligatures will take the place of splints. The demonstrations that have been made in the past few days, will, I think, bear me out in the thought that with silk ligatures you can hold teeth almost anywhere, and that patients will have almost complete use of their teeth, both for articulation and mastication.

ANCIENT DENTISTRY.

BY F. K. LEDYARD, SAN JOSE, CAL.

[Read before the Pacific Coast Dental Congress, July 15, 1897.]

THE subject of my paper is, as you all know, a very broad one. I much regret having so little time to give to its preparation. My remarks will necessarily be brief. I am only able to touch on the important points as we pass along from somewhere about 1215 years before Christ down to the present era. I have found it a most fascinating subject, and began some years ago to look more closely into its past history. I will quote largely from Dr. B. J. Cigrand's work, "The Rise, Fall and Revival of Dental Prosthetics," now in its second edition. I am also greatly indebted to Dr. W. C. Barrett, Dean of the Dental Department of the University of Buffalo, and former President of the American Dental Association, for many valuable personal letters containing information not yet published.

Some of the specimens which I will show you this evening antedate the founding of Rome, and come from that classic period before those "dark ages" more commonly called the "middle ages," when all arts suffered; this covered a period between the fifth and eighteenth centuries, variously estimated at one thousand years. During this time dentistry took a backward step and went into the hands of the blacksmith and barber. Still later a good deal of the surgical and medical practice went into the hands of the priesthood; but early in the fourteenth century a council of the Roman Church, held in Paris, decreed that the monks and priests be forbidden to perform bloody operations; so to the barber fell the dental art, and continued so for centuries. A jesting poet speaks of the barber surgeon thus:

His pole with pewter basin hung,
With rotten teeth in order strung,
And cups that in the window stood
Lined with red rags to look like blood,
Who shaved, drew teeth and bled a vein.

And to-day in your own city can be seen on the "Barbary

Coast" just such a picture, save the "cups lined with red rags to look like blood."

As to what was done in the dental line by that great surgeon, Æsculapius (who lived some 1215 years B. C.), and Hippocrates, his fourteenth or seventeenth descendant, 450 years B. C., we will not treat; all work at that time by them, in the oral cavity, was (as far as we have any means of knowing) simply in the line of giving relief from pain; and as to the native home of dental prosthetics, it is, as far as I know, only conjecture. Dr. Barrett says: "I have in my possession specimens of ancient dentistry dating back

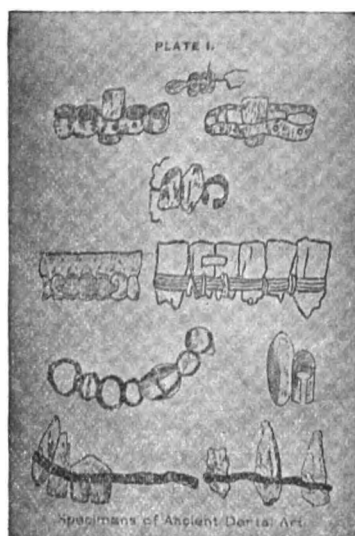


FIG. 1.

750 years B. C." The specimen of which I speak is represented in the lower right hand corner of the plate (Fig. 1) before you. This was taken from Cigrand's work. The authenticity is undoubted. Dr. Barrett has the certificate of the officer in charge of the exhumation, and says "the specimen was taken from an ancient Etruscan tomb. The laws of Italy prescribe just how the exhumation of these ancient relics shall be prosecuted, and place the work in charge of specially appointed officers, who are compelled to see that the regulations are carried out. This specimen dates from

about the time of the founding of Rome by Romulus and Remus. It consists of natural teeth bound in place by bands of gold, and is the oldest piece of dental art in existence. The artificial teeth crumbled to dust when removed; the small upper cut was made at a comparatively late period, as the teeth are made from mineral paste not over 110 years ago. The next two are copies of Etruscan pieces about 500 years B. C. They were fitted about existing teeth and then metal pins were inserted in holes drilled through the bands and teeth; then they were slipped in place, but must always have been rather movable.

The next, standing alone in the line, was probably of the same character as the very first one. The next one on the left is of comparatively recent date. The other in the same line is the most curious and valuable piece of dentistry that exists, if it exists at all. Dr. Barrett says: "Its existence rests upon tradition. The original drawings are found in an Italian museum, but only the drawing. It is said to be a piece of Phœnecian work that antedates mine by 200 years or so. It is said to have once existed, but cannot now be located, and consists of teeth held together by gold wire." In the next row below are two pieces; the smaller is quite modern and could by no possibility belong to the era of the other. The one at the left of this, and the one immediately below, is the same piece, but showing a perpendicular in place of a lateral view. Dr. Barrett had it made to show the way the added teeth were held in place, i. e., by a wire inserted in a hole drilled through. The band is not separated and soldered together, but is all one band, simply pinched together at the points at which it appears to join, and then held by a string (Fig. 2, photograph of all the specimens, furnished me by Dr. Barrett). The center one in this figure is the ancient Etrurian specimen just described. The one just at the left of this is of the same period, but about 150 years later. The others are carved ivory specimens, etc., belonging to Dr. W. C. Barrett and myself, some of which I will show you later.

Dr. Barrett, at a recent meeting, showed other speci-

mens of unusual interest, as they bear unimpeachable testimony on some interesting points connected with the teeth of man; he says: "Dentists of to-day usually entertain the idea that the prevalence of disease of the teeth is to be attributed to the altered methods of living, to the modes of cooking food, to change in manner of life," etc. Some years ago Dr. Barrett examined some 2,000 ancient skulls, more especially with reference to dental disease. He says: "This examination at once demonstrated conclusively that all diseases the of modern life, except syphilis, were as rife

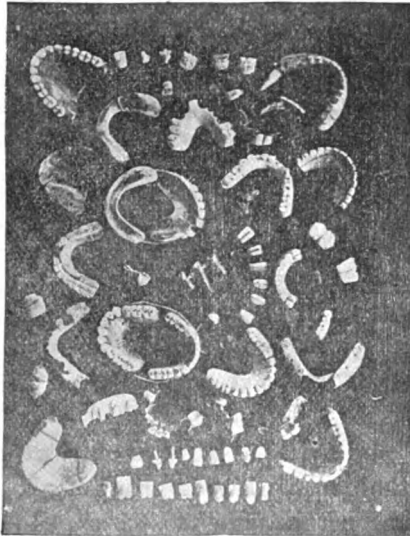


FIG 2.

in ancient times as they are to-day." The teeth exhibited showed the existence of pyorrhea alveolaris 750 years before the Christian era.

This is an ancient Phoenecian engraving from Cigrand's work (Fig. 3), representing a dentist extracting a tooth from the left side of the jaw of a Scythian king, Pairisadies by name. This engraving was found upon a Scythian vase discovered in an immense tumulus or buried mound to the west of Kertch, a small town on the Crimean peninsula. Cigrand quotes Dr. Eames, who says: "The richest of the numberless tumuli so far opened is this one called the

Koul, Oba, which was examined under the Russian government. This was a royal tomb, and in a spacious apartment constructed of large blocks of stone, were found the mouldering remains of the king, his queen, or favorite wife, his servants and horses, and surrounded by his treasure.

Near the splendid wooden sarcophagus of the king were the remains of his queen. On her head was a mitre-shaped diadem and at her feet a vase of electrum, upon which was embossed a frieze of characteristic episodes of Scythian life. Upon the vase are four groups in exquisite repoussé work, giving incidents in their life. The king is clad in Scythian costume, a tunic belt at the waist, and full trousers tucked in the boots. In one group he is listening to a report of a warrior kneeling before him. In another he is bending a bow; in a third his wounded knee is being dressed, and the last, the engraving before you. This dates 310 B. C.



PHENICIAN.—THIS ENGRAVING REPRESENTS THE ANCIENT DENTIST OF WHOM WE SPEAK ON PAGES 33 AND 44.

FIG. 3.

ers tucked in the boots. In one group he is listening to a report of a warrior kneeling before him. In another he is bending a bow; in a third his wounded knee is being dressed, and the last, the engraving before you. This dates 310 B. C.

The renowned archæologist Belgoni says: "It is said the Greeks wore false teeth of Sycamore wood, which were held in place by ligatures of gold fastened to the natural ones, and that many of the natural ones were filled with a clay-like substance which appeared to be very durable." The tenth of the celebrated Greek laws of the "Twelve Tables" relating to funeral ceremonies, has, besides others, this direction: "Let no gold be used, but if anyone has his teeth fastened with gold, let it be lawful to bury or

burn that gold with the body." This dates back some 450 years B. C.

There are many cases of ancient pieces of prosthetic work in various museums and private collections throughout this country and Europe, but time prevents me going more into detail. There are many claims of teeth having been found filled with gold, among the ancient Etruscans and Egyptians, but Dr. Barrett says: "There is much, I am entirely satisfied, that is false. For instance, I have never seen any reliable testimony whatever that prophylactic dentistry—filling teeth for preservative purposes—or any of what is now called 'operative dentistry,' was practiced until within a comparatively recent period. The assertion that ancient Egyptians filled their teeth rests upon the error of unprofessional observers, who mistook the gilding and ornamenting the teeth of the dead for gold fillings." He further says: "Gold was never used, in my belief, until within a couple of hundred years or even less, and a great responsibility rests upon those who have accepted unworthy and unsubstantiated testimony for facts and recording it as history."

The majority of the specimens which I show you are carved from hippopotamus ivory; there are three made from elephant ivory. Dr. Barrett says: "Hippopotamus ivory was mostly used, as it was harder, but in either case, could not be worn more than three years. If left out of the mouth it cracked; or 'stunk' with a stench peculiar to itself if worn continuously."

Wishing to become better acquainted with these specimens, I was referred to Dr. Barrett as the one probably best fitted to give the needed information. He very kindly consented to do so, and I sent them on to him, and am greatly indebted to him, not only for this, but also for other information pertaining to this subject. I would like to say here, that although Dr. Barrett was entirely exhausted from his labors in three colleges, aside from his literary work, his practice, and other duties, he was ever ready to give freely of that which he had labored years to obtain, all for the

good of the profession to which he has devoted his life, and the associates whom he loves, and that includes every worthy dentist.

These specimens range in age from 100 to 150 years. They were mostly gathered by my brother, Dr. H. C. Ledyard, who spent much time in traveling, and always took a lively interest in all antiquities, particularly those pertaining to his beloved profession. They were mostly gathered in New Zealand, the Phillipine Islands, China and Japan.

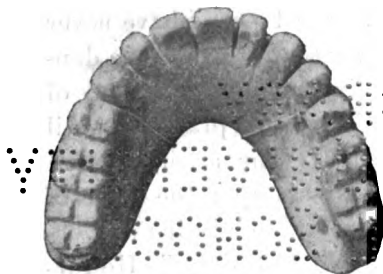


FIG. 4.

This full upper set is carved from walrus tusk (Fig. 4). Dr. Barrett says: "This was the kind of work used before swaged metal plates came into use. At this time they did

not take impressions and make plaster casts to which to conform the plates, but they carved and fitted them to the mouth directly. The prosthetic work consisted of single teeth and partial or full plates thus carved; partial plates were necessarily tied to the remaining teeth." This is one of my oldest specimens. It was made before 1787.

As it was not held in its place by the spiral spring, I have not been able to find in what manner this plate was secured; but it must have been by a spring of some kind. This was carved from one solid block of walrus tusk; it has been worn but little, as it is not discolored.



FIG. 5.

This is one of my finest specimens; it is a full lower set (Fig. 5). Human teeth are set on with metal pins as far back as the molars, which are carved from the solid block. You see the metal post still remaining where the human teeth have been lost. This specimen shows great skill in workmanship, and is about 150 years old.

This shows a partial lower set carved from the same material as was previously shown (Fig. 6). It was not tied in, but was held in place by cement, filling counter sunk sockets, made in the plate by the side of the natural teeth. The cement is quite hard and of a yellowish appearance.



FIG. 6.

This represents one partial upper and two lower plates (Fig. 7). They are of elephant ivory; two have never been worn. The small piece was probably fastened to adjoining teeth.

Here is a lower plate (Fig. 8), made since the discovery of the spiral spring by M. De Chemant in 1787. It has been

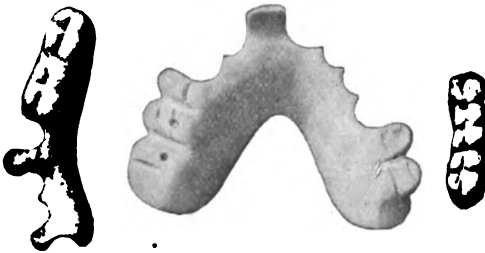


FIG. 7.

much worn, and originally had natural teeth set on with pins; all are broken off and the case worn in its present condition probably to hold the upper in place.

Cigrand says: "To a German dentist, Dr. Mesne by name, we should be grateful for the process of filling teeth with gold leaf." In a German volume published in 1541, entitled "Medicine for the Teeth," he says: "First scratch and clean with a fine file or chisel, knife or any instrument the hollow parts attacked, and fill with gold leaf."



FIG. 8.

In 1579 Ambrose Paré (familiarily known as the "barber" dentist) discovered the possibility of successfully trans-

planting teeth; this practice, however, Dr. John Hunter most emphatically denounced. He says: "Transplanted teeth can never recover life," etc. Following this eminent Frenchman came others, all of whom contributed to the advancement of dentistry. "Thus Hemard, a French dentist, manufactured in 1622, ivory dentures; Petrie, a Parisian dentist, advertised himself as a specialist on 'Implantation of Teeth.' (Cigrand.) In 1735 the French Academy of Science announced the discovery of caoutchouc, which,

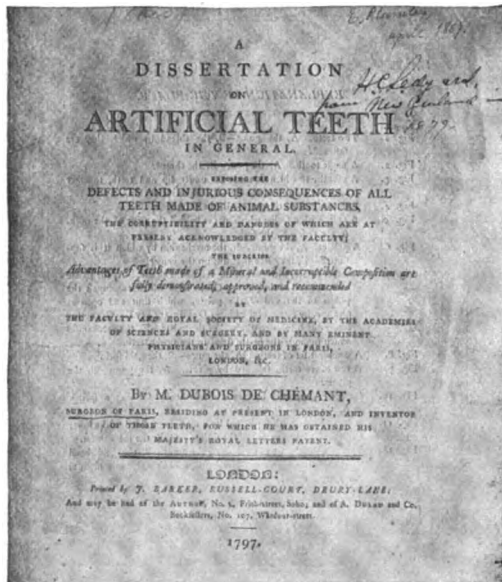


FIG. 9.

in various forms of preparation, was used by dentists as a filling material."

In 1728 Dr. Fauchard proposed, as a substitute for natural teeth, such as could be made of porcelain; this, however, was simply a suggestion for some future inventor. It was left for M. DuBois De Chemant to perfect the art; and to him is due the credit of bringing porcelain teeth into general use. I have in my possession a very interesting work published by him in 1797. (Fig. 9, Chemant's title page.) The title page, you will observe, is difficult to read; but it is most interesting to see with your own eyes the

work of that master mind that has done so much for the dental art. This work can be seen, together with other specimens which I have on exhibition here. This, you will see, is "A Dissertation on Artificial Teeth in General, exposing the defects and injurious consequences of all teeth made of animal substances, the corruptibility and dangers of which are at present acknowledged by the faculty."

"The superior advantages of teeth made from a mineral and incorruptible composition are recommended by the faculty and Royal Society of Medicine by the Academies of Science and Surgery, and by many eminent physicians and

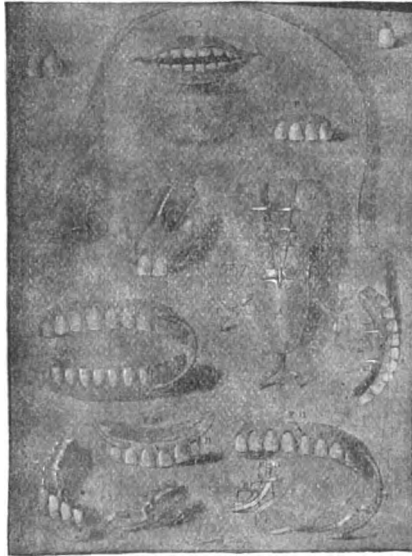


FIG. 10.

surgeons in Paris and London, by M. Dubois De Chemant, Surgeon of Paris, residing at present in London, and inventor of those teeth for which he has obtained His Majesty's Royal Letters Patent, dated 1797."

Fig. 10, is from M. De Chemant's book, just described, and represents some of his work. All of these pieces are made from his mineral paste. You will notice the spiral spring in the full set, also how he has arranged it to hold the upper plate in place by resting a frame over the lower teeth. The advantages of this spring are, that it gives more freedom to the jaws, etc. Among the eminent men of that

day who were using these mineral teeth was the renowned surgeon, John Hunter. Fig. 11 is from a photograph from a page in Chemant's book on "The Advantages of Incorruptible Mineral Substances to Make Artificial Teeth," which reads:

"Being convinced of the multiplicity of accidents occasioned by teeth of animal substances, and surprised at the little progress which art had made in this branch of surgery, I have dedicated myself entirely to it, and have made it the object of my particular researches. I have multiplied my experiments without ever having been discouraged by the

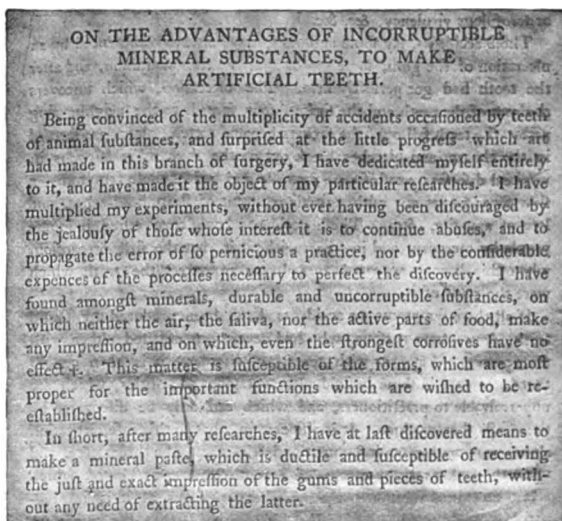


FIG. 11.

jealousy of those whose interest it is to continue abuses, and to propagate the error of so pernicious a practice, nor by the considerable expenses of the processes necessary to perfect the discovery. I have found among minerals, durable and incorruptible substances, on which neither the air, the saliva nor the active parts of the food made any impression, and on which even the strongest corrosives have no effect. This matter is susceptible of the forms which are most proper for the important functions which are wished to be re-established.

"In short, after many researches, I have at last dis-

covered means to make a mineral paste which is ductile and susceptible of receiving the just and exact impression of the gums and pieces of teeth without the need of extracting the latter. I have succeeded in giving to their substance, by a practical process, a degree of solidity which renders it capable of resisting the greatest efforts without breaking or producing any of the effects which may follow from breaking or from the exfoliation of the animal substances hitherto employed.

"The color which is given to this composition is unalterable; the color of gums can be exactly imitated, which is of utmost importance, the deficiency of the jaws remedied and by imitating on the substance, formed at pleasure, the original color which is natural to the parts necessary to replace a degree of perfection is obtained hitherto unattempted."

Fig. 12 shows specimens of medieval dental art, and is from Cigrand's work.

This is a "Report of the Academy of Science Concerning the Teeth and Sets of Teeth, of the New Composition of M. Dubois De Chemant, Extracted from the Registers of the Royal Academy of Sciences, dated the 10th of June, 1789," and says:

"M. Darcet and I have been charged to examine the teeth and sets of a new composition which M. Dubois De Chemant has presented to the Academy, and to give an account of them. The company has been able to judge, as we have, that those teeth and sets very nearly imitate nature, as well by their form and color, as by the portions of artificial gums which support them, and to which De Chemant also gives a very great likeness to natural gums, but what merits for them a considerable preference beyond all those which have been composed hitherto, is that they are of hard substances upon which the saliva and the particles of food which remain in the mouth have no effect; whereas, the others, made of animal substances, and little resembling



FIG. 12.

natural teeth, are easily spoiled, acquire a dirty color, and contract a smell as offensive as it is prejudicial to the health. The matter which M. De Chemant makes use of is a mineral paste, to which, after many efforts, he has found means of giving a natural color, like to that of the teeth which he means to supply. He can mold it into any form so as to make whole sets, half sets either for the upper or lower jaw, portions of sets—when there remain above or below teeth which may be preserved, single, double, treble or quadruple teeth, as necessity requires. The whole sets are put in motion by means of springs of De Chemant's invention, which are very different from those used heretofore, and which not only separate the parts when the jaws are distended, but also allow the side motions. These springs are applied to both sets, even to the upper ones, in a manner as simple as it is ingenious. A mechanism equally simple joins the parts of sets to the natural teeth, which remain; and single, double and treble teeth fit with the greatest facility because De Chemant has found means of boring his paste so as to place pins in them, and to make any slides he pleases.

“His manner of taking measures of the teeth which he intends to replace adds greatly to the merit of his invention. His process is such that each piece is molded, as it were, for the place it is to fill; and as for the whole sets, half sets or any other portion whatsoever, their base receives and surrounds the edges of the gums, or the part on which they are applied, so as to render their position very solid and to prevent the pain they may otherwise occasion. By this process he can preserve as long as he pleases the molds of all his pieces and can take very exact and perfect measures of persons at a distance, whom he never saw, and, provided he be informed exactly of the color of the remaining teeth, he is sure to send pieces which will fit with the greatest exactness as well as if he had taken the measures and placed the teeth himself.

“M. De Chemant's paste is very solid; it cannot be broken between the hands without employing great strength.

“The Academy will no doubt permit us to conclude, from what has been said, that the artificial teeth and sets of teeth of M. De Chemant deserve being approved by it, and that

it should be proper that history should mention the happy application he has made of a hard and incorruptible matter to an end so useful as that of supplying the want of lost teeth.

“(Signed): D’ARCET AND SABATIER.

“At the Royal Academy of Sciences, June 10, 1789.

“I certify the present extract is agreeable to the original and to the judgment of the Academy.

“(Signed): THE MARQUIS DE CONDORCET.

“Paris, June 21, 1789.”

The split-bean teeth here represented (Fig. 13) are the first put up with pins, baked in the mineral paste; the glaz-

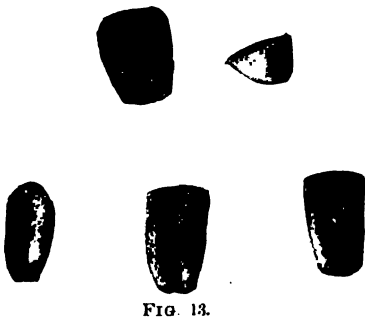


FIG. 13.



FIG. 14.



FIG. 15.



FIG. 16.

ing is only on the labial surface. It is held in place by being soldered to a metal post (Fig. 14), as seen in this old skeleton plate now before you. This is also a very fine specimen of its kind, and was made before impressions were taken.

These are the old English clasp plates (Fig. 15), swaged gold, with the old English tooth soldered on to a flat gold backing. These are of comparatively recent date.

This is a swaged clasp plate (Fig. 16), but has human teeth set on metal pins, and has been much worn. The workmanship is very fine.

The Chinese carved teeth (Fig. 17), from bone or ivory, to fit the vacancies in blocks of one, two, three or more, as the case required; drilled holes through them and tied them

in place with ligatures. In two of these specimens the cotton string still remains. They are a great people for large teeth, as these specimens will demonstrate. They have been making them for ages. From the time of the first American dentist, Dr. Joseph Lemaire by name (Fig. 18), who came to this country from France, in July, 1778, down to the present, there has been one steady onward upward development; more particularly is this the case in the last

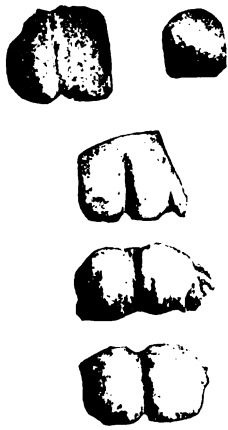


FIG. 17.

forty years. After the taking of impression was devised the making of swages and the striking up of metal plates to fit the mouth became common. Here is a set of old French teeth mounted on silver (Fig. 19), also a silver swaged plate with block teeth; the mo-



FIG. 19.



FIG. 18.

lars and bicuspidis are in one block; this has a soldered rim and is very nicely made. Even at this time they retained the clasps to hold the partial plate, and used the spiral spring to keep full sets in place, but these are suction plates.

Dr. Barrett also sent me these teeth (Fig. 20), and

says: "They are the first mineral teeth made by Hayes of Buffalo. They were about the first gum teeth made; the earlier teeth had none. About the same time Stockton devised the same thing, and each placed them on the market without the knowledge of the other. Stockton's pivot teeth were used when I came into the profession, and for some time since, but have been superseded by crowns and metal pivots. To a degree Bonwill's crowns first crowded them out, and since others have been devised."

Stockton was the first to put artificial teeth up in sets, as before that a promiscuous lot of all kinds and colors were given a dentist to select what he wished, and to match as best he could. He was the greatest of all who manufactured teeth. He was the uncle of S. S. White, and the latter took up the work where the former laid it down. Dr. Barrett



FIG. 20.

says: "The earliest dentists of that city employed calves' teeth largely, obtaining them from the markets. Human teeth could also be bought. I have the first moulds for the forming of artificial teeth ever made by Hayes, and they are really nice."

This is a wooden plate (Fig. 21), Japanese work, and is for a Japanese widow. It is made entirely of wood and blackened. It has been worn, as the plate is nearly broken in two, and was repaired with a piece of steel wire, part of which still remains. They are inexpensive, ranging in price from one to five dollars. The cheaper sets are all of wood; but in the more expensive the teeth are made of bone, ivory, stone, etc., set in wood and held in place by ligatures. When the Jap made this case he was probably seated on the street corner, but now you will find regularly equipped den-

tal offices using up-to-date methods. I am greatly indebted to Dr. W. A. Bryant for a very fine specimen of Japanese work, a wooden plate with teeth all in place, which are made of soapstone.



FIG. 21.

This plate (Fig 22), is about eighty-five years old. It is made of ivory, in blocks of three, with a flat groove cut in the palatal surface, through which passes a flat silver wire. The holes are drilled through block and wire, and held in place by wooden pins. It is a very crude work, and was made in Philadelphia for a great aunt of mine, whom I can just remember.

This is a plate made for the same person (Fig. 23), after the one just shown became useless. This, you see, is an



FIG. 22.



FIG. 23.

improvement, showing a swaged plate with the old English tooth, and was made about eighty years ago.

I have necessarily omitted much that I would like to present this evening, but enough has been said to show that we are in the greatest age of progress that the world has ever known, and that dental science is keeping well abreast with the times, and in such a way as to command the respect of the civilized world.

DISCUSSION.

Dr. Goddard.—We cannot but admire the patience and pains with which Dr. Ledyard has gathered together these specimens for our instruction to night. We have all of us certainly learned a great deal, and we must very much admire the patience, the perseverance and the excellent workmanship of those who carved these early plates. As you will remember having heard a description of their being carved from blocks of bone and ivory by applying pigments to the model of the mouth repeatedly, and cutting off the parts of the blocks which were discolored by contact, thus gradually and with great pains fitting more nearly and still more nearly until they approached wonderfully near the seats on which they were to rest. There was one specimen which the Doctor wondered how it was held up in the mouth—a grooved piece, if I am not mistaken. I think it must have been wholly by atmospheric pressure, because we have seen swaged plates of exactly the same shape covering the arch, which were worn by the patient without any visible means of holding them, that were simply held by atmospheric pressure. When they first began to make metal plates, that is, in distinction from those which are simply bands and wire they were struck up with punches and bent with pliers. You can imagine the pains it took to approximate a plate in metal to the irregular form of the palate. I think the application of atmospheric pressure to the retaining of dentures must have been an accidental discovery by the unusually exact fitting of some piece made by punches and pliers. This might appear impossible if we did not remember that in our own day we have had porcelain dentures, dentures wholly of porcelain, which had to be baked upon an enlarged model on account of the shrinking of the porcelain, and which were afterwards fitted to the plaster-cast by grinding out the porcelain by means of small corundum wheels, grinding so as to fit the plaster-cast, not accurately of course, but sufficiently accurate to hold by atmospheric pressure. In regard to this, while it is a little off the subject, it is said that the porous surface of the porcelain fitted them to be held unusually well in

those mouths, possibly from the fact that each of the little pores of porcelain acted as a vacuum cavity.

In early days we read that the mutilation of the body was used as a means of punishment for crime, cutting off ears and noses. It is more than probable that teeth were knocked out for the same purpose—mutilation as a punishment for crime; and it is quite possible that the greatest endeavors to have artificial substitutes were made by those who had been mutilated by having the teeth knocked out, in order that their punishment might be concealed. I can only commend Dr. Ledyard for the pains with which he has presented us this very interesting report.

Dr. Chance.—Mr. Chairman, some time ago I was seated at a table where there were some young men and an old man. The young men related an incident that they had read in the paper in which this was said: "When a boy is about eighteen years of age he thinks an old man don't know anything; when he gets to be about twenty-one years of age he thinks the old man knows a little; when he gets to be about thirty years of age he thinks the old man knows a good deal." So, as boys if you please, looking at the illustrations we have seen to-night in regard to ancient dentistry, we find that the old men knew something. Now, I have read up pretty well on this matter, and I just made a note or two. Lemaire came over with Lafayette, and belonged to the Continental army. He studied dentistry in New York city. The first American dentist was Dr. Greenwood, who made for Washington the Father of his Country, two sets of artificial teeth, and they were carved in this manner. In connection with this subject, in the line of ancient dentistry, when we come to transplantation, replantation or implantation, I want to relate an incident that occurred in the city of London, England, in 1840 or near that time, about a wealthy lady, a duchess. You may call it a legend or a fact, but I am satisfied it is a fact, and it illustrates a principle that I want to get at. You know you have seen organ-grinders in San Francisco (they had organ grinders and monkeys in those days; I presume we have some monkeys yet). This lady desired two central incisor teeth. An Italian boy was murdered for those teeth. Two beautiful central incisor

teeth were removed from the mouth of the boy and put into the mouth of the duchess. It was afterwards discovered and the murderers were traced by the fact of the boy having lost his teeth, and they found out what became of them. So, you see, transplantaion is very old. In regard to springs: we have had more than one spring. These upper and lower plates were held together by springs. They were invented in England.

Dr. Post.—Mr. Chairman, I would like to ask Dr. Ledyard the dates of these plates?

Dr. Ledyard.—Mr. Chairman, I am utterly in the dark as to the dates of them. They were made as "suction" plates, as is clearly shown by the air-chamber. The teeth are the old English variety. The first case shown on the screen, the full upper ivory denture, was not held in place by the spiral spring. It was not the same kind of a spring, as indicated by the remark made by M. DeChemant in his work that the spiral spring gave a lateral motion.

I would like to say before taking my seat, if you will excuse me a moment, that the discovery of the "suction" plate was by accident, and by a man in New York city. His patient wore a plate for some time; the spring became broken and he kept coming back, and finally said: "Take the old springs out; I don't want them at all." He took them out and wore them that way. From that on we put plates in without springs, having discovered that they were held by atmospheric pressure.

Dr. Whitney.—I do not consider myself an old man, but a few years before I graduated in dentistry my friend Prof. James Truman came to me and said: "I have an invitation and an offer for you by a dentist in Vienna to go into his office. He asks one thing of you, and only one, that you shall know how to carve hippopotamus teeth." "Well," I said, "Professor, you haven't taught me how to carve hippopotamus teeth, and I don't think I will go to the Vienna dentist." "Oh," he says, "you will very easily get rid of the hippopotamus teeth. All you have to do is to take a few of our modern teeth along and there will be no more hippopotamus for him." So, you see, even so late as 1868 at Vienna they were doing the same carving of teeth that

Dr. Ledyard has brought before us. I want to say before I sit down that I greatly enjoyed Dr. Ledyard's address, and I think it will be a very valuable one to the profession. If it is published in our report I am sure it will be read everywhere with interest.

Dr. Goddard.—Mr. President, as Dr. Whitney has spent considerable time in examining the skulls of ancient Hawaiians, in which he found evidences of all the dental diseases with which we are now acquainted, I would like to ask him if he found any evidence of any kind of substitution?

Dr. Whitney.—Not any.

THE INFLUENCE OF SCIENCE ON MODERN CIVILIZATION.

BY CECIL CORWIN, D.D.S., OAKLAND, CAL.

[Read before the Pacific Coast Dental Congress, July 15, 1897.]

SCIENCE proper, as we know it to-day, dates back to the seventeenth century, but the greatest strides have been made in it since 1830. A general classification of sciences is in the following order: Mathematics, astronomy, physics, chemistry, biology, sociology and ethics. In all of these main divisions there are numerous subdivisions. The modern tendency is to specialize; and a lifetime may be spent without mastering one specialty. Unfortunately, the moral sciences, or those dealing with man, are the least developed, and have not yet been rescued by philosophy from empiricism. Since the appearance of absolute science on the field of human labor certain phenomena have been observed which prove beyond doubt that man is slowly but surely becoming what he was intended to be—the perfect image of his Creator.

The subject under consideration is too broad to contemplate in its entirety, so my efforts have been confined to the brief consideration of the past and present status of man's physical condition in order that we may fully comprehend the responsibility which rests upon our shoulders.

It seems to be the prevailing opinion at the present day that modern civilized people are much inferior to the an-

cient races with respect to physical development and stamina. That such is not the fact is proved by statistics of all civilized nations, which show that as civilization advances death-rates decrease, longevity increases, and the people become better developed physically.

Nevertheless, it is a well-known fact that certain ancient people were superior to the present generation in their physical proportions, but much of their superiority being due to the fact that they were continually at war with one another, necessitating the constant training of soldiers for conquest and self-defense. An instance of such a people may be found in the old Vikings, who were probably the most powerful and fearless warriors the world has ever known. From lack of civilization and scientific accomplishments they were unable to maintain themselves against depletion from warfare, disease and famine.

The Romans and Grecians furnish us with abundant proof of the benefits of civilization upon the physical condition of the people. It is the study of their history that has been such a great help to the people of the present day, and yet their results were obtained without scientific aid.

If we are to accept the history of the ancient Semitic races given in the Bible as scientific, we find that many people attained the age of two hundred years or more. Abraham lived to be two hundred and five years of age. In his eighty-sixth year he became the father of Ishmael, and in his one hundredth year the father of Isaac. His wife Sarah was then ninety years of age, and lived to attain the age of one hundred and twenty-seven. Such instances of longevity are unknown at the present day, and it would appear that great changes have taken place in the constitution of the human race. Although we are at present making rapid progress in that direction, it does not seem probable that we will ever reach any such condition of life. The most remarkable cases of longevity among people of the present day are those of a family in Ohio, who average one hundred and ten years of age. They are Elizabeth Hillard, 115

years; Margaret Arnold, 112 years; Susan Bailey, 109 years; William Kiser, 104 years.

The mummified remains of the ancient Egyptians do not indicate any great physical superiority over the present generation. On the contrary, they were rather a small race of valley people, occupying the lower region of the Nile. The explorations of the ancient tombs of the Teutonic race show that they were no larger than their modern descendants, the Germans.

Height, weight and muscular power can be developed within the limits of racial type by favorable conditions. The inhabitants of mountain regions are always larger and more muscular than those of the same ancestry who inhabit the plains. We have to-day striking examples of the influence of topography upon a people. The Scottish Highlanders have for many generations inhabited a particularly high mountainous region where vegetation is scarce and great activity is required to maintain existence. The result is a race of people whose muscular development and traits of character are known the world over. The Germans, on the other hand, have mostly occupied level plains, and, as a result, they are short in stature and rotund in body. Transplanted into America, the English people have already assumed a type varying considerably from their cousins who have remained at home. The hardships to be met with in the settlement of a new country result in the increased stature and muscular power of the people. The average height of males in the United States is 5 feet 10½ inches; England, 5 feet 9 inches; France, 5 feet 4 inches; Belgium, 5 feet 6¼ inches.

During the civil war the largest and strongest soldiers were from the mountainous regions of Kentucky and Tennessee. They measured, on an average, 5 feet 9¼ inches in height. The Iroquois Indians (some five hundred of whom were included in the examination) averaged 5 feet 10½ inches in height. Next to these came the recruits from the Mississippi Valley, with an average height of 5 feet 8¾ inches. California has now taken the lead in these re-

spects, having a climate which favors the development of large and healthy people.

Children of foreign parentage raised in America are taller and much better developed than those of the same ancestry who live in the old countries. Measurements have been made of school children of the United States and striking results obtained; one of these being that Oakland city school children starting at five years of age below the average size rise above it at the completion of the period of growth; while the children of St. Louis, starting above, fall below the average at maturity. It is certain, therefore, that in this vast country of ours, possessing at it does, such a variety of climatic and topographical characteristics, the American people should become the most perfectly developed race on the face of the earth, under the influence of science. With such facilities for communication and travel as exists, we will not develop into numerous types corresponding to each section of the country, but, by migration and intermarriage, the best qualities of the race will be distributed. Indeed, investigation along this line is particularly fruitful of results. Tables of mortality show conclusively that death rates are lower and expectation of life greater in America than in any other country. In 1890, the death rate in America was 18 per 1000 of inhabitants; in England 20, and in Scotland, 21. From 1880 to 1890, deaths of children decreased 15 per cent. The average age in 1880 was 23; in 1890, 25 years.

It has been the history of every nation that as civilization advances the size of the families decreases. Accordingly, we find that in 1880 the average for each American family was 5.09; in 1890, 5.04, showing a decrease of about 5 per cent. for the decade. From the Massachusetts census it seems that the foreign-born married women have a larger number of children than the native-born married women, but that a greater proportion of them die. It is therefore manifest that, as the birth-rates are decreasing and longevity increasing, a greater number of children survive than formerly. The decrease of the birth-rates is an

indication of advancing civilization rather than a degenerating tendency. From 1820 to 1830 the natural increase of Americans was 32 per cent. From 1880 to 1890, 14 per cent.

The introduction of physical culture into our schools has resulted in an increase in height, weight and muscular power of the students. Amherst college, in 1861, made physical exercise a compulsory part of the course. The following are a few of the facts deduced from a comparison of the data collected at different times: The average actual strength of students for the years 1887 to 1891 is 8.5 per cent. greater than for the years 1861 to 1868. The average loss of time from sickness was 8 per cent. less from 1885 to 1889 than from 1861 to 1865. Deaths from 1861 to 1870 (exclusive of those killed in the war) were 6 per cent. of the whole number graduated. From 1881 to 1890, 3 per cent. of the whole number graduated.

That a sound body is necessary for a sound mind cannot be denied, and a civilization which overlooks the physical for the mental development would be laying itself liable to degeneration. Notwithstanding the many favorable results of the application of scientific investigations to the present generation, we are still confronted with serious conditions which menace the health and lives of the people. From the number of cases of insanity among men of business who have broken down in the struggle to amass fortunes it is fair to presume that the prominence given by Maudsley to eagerness to get rich as a cause of insanity is amply justified. He says: "The occupation which a man is entirely engaged in does not fail to modify his character, and the reaction upon the individual's nature of a life which is being spent with the sole aim of becoming rich is most baneful, and it is my firm conviction that it is extremely unlikely that such a man will beget healthy children."

The alarming increase of insanity in the United States is shown by the fact that in 1870 there were 37,000, and in 1890, 92,000 cases. The increase of crime is also an alarming condition. In 1880 there were 709 convicts in our

prisons to every million of inhabitants. In 1890 there were 722 to every million, showing an increase of 13 to the million in ten years. Such conditions require the most careful application of scientific knowledge to eradicate them.

Science has done so much toward saving the lives of individuals who are not properly constituted to beget healthy, robust offspring that it has increased the number of weak and deficient in the world to such an extent that the increase of crime and insanity has become a menace to organized society. Until applicants for marriage licenses are required by law to undergo a thorough physical examination and to show that no hereditary weaknesses are manifest, the evils to which I have referred will remain with us. Life insurance companies are carrying out this principle at the present day as the surest mode of protection. Why, then, should organized society as a whole allow its ranks to be filled with any and every class of humanity without a voice in the matter? It is a condition that does not exist in any other confederation. It is our duty then, as scientists, not simply to confine our studies to the narrow limits of our profession, but to make the more important general results profitable to the mass. The highest triumph of the age would be the inauguration of a system based on the scientific attainments of the day which would result in the complete emancipation of the human family. As America has taken the lead in the education of the masses as a means of self-protection, we should go one step farther and protect the blood of the people against the contaminating influence of heredity. With the knowledge and means at our disposal let us not allow the highest of God's creatures to succumb to the influences of ignorance without an effort in the cause of human progress.

DISCUSSION.

Dr. Teague.—Mr. President, Dr. Metcalf, having to go away, asked me to undertake the task of replying to this scientific paper. I think a reply to anything scientific should be first scientifically looked up. I certainly have not had time to do that, even were I capable of devoting to it the

proper degree of research and attention. I was impressed with the general tenor of the paper as being proper and having a certain bearing, but I looked to the conclusion of the paper to turn to something upon dentistry. It seems to me that scientific research is so vast in all its phases that it is almost too much to expect a dentist to become versed in everything scientific. If he confines himself to that in which he is most interested he can accomplish something to greater advantage. Of course, we understand that physical development is consequent upon the environment of the people, and that people of the moderate or temperate zones are the hardiest. I don't think that we can say that the Bible is scientific in all its figures. Perhaps it would not bear scientific investigation. That Methuselah lived over 900 years I do not think is a scientific fact. Of course, I am not questioning the Bible, but I am speaking from a scientific point of interest. The essayist spoke of the degeneracy of people. Of course, we know that those races that inhabit countries where the foot of the Caucasian has never trod are hardier races than those are to-day where the Caucasian rules. As Dr. Whitney said in his discussion a few moments ago, the teeth of the Hawaiians were once more perfect than they are to-day; that they are degenerating. This goes to prove that as a rule, the comforts and conveniences of civilization are degenerating the teeth, and that it is necessary that science should step in and make up for that loss.

Dr. Corwin.—If the gentlemen are through with the paper I would like to close it with a few remarks. The point spoken of by Dr. Teague is important. If I had had a little more time and could have made the paper longer, I would have brought it in touch with dental science. It was, however, too long a step from the subject to specialize it. While we are considering it now from a special standpoint, I will say that the influences that cause the breaking down of immigrant's teeth we do not fully understand. There are, however, one or two points which we can ascribe to these conditions. As to foreigners who come here they have had their habits and customs fixed for generation after generation. It is almost impossible to change these conditions in the course of two or three years' residence in this country.

But the fact remains that their children do develop and grow better here in America than they do in their own country. Statistics prove it. Their children are larger, stronger and healthier here than they are in their own country. You are all familiar with that.

The application of science to civilization has only been for about sixty years. We are just beginning to enter into the field of science. There are no branches that have been pursued to a conclusion. The Dental Congress is one of the means by which we can attain the end. But you or I will never see the end of scientific attainments.

PRESIDENT'S ADDRESS.

BY GEORGE H. CHANCE, PORTLAND, OR., D.D.S., M.D.

[Read before the Oregon State Dental Association, October 14, 1897.]

IT is not my intention in this address to give you a long discourse on the rise and progress of modern dentistry, however profitable it might or might not be, nor to descant upon any particular phase of the science or art of our profession, but rather to throw out in a promiscuous way a few suggestive thoughts for your careful consideration; and as I proceed should some things be said which may sound harsh to your ears, I trust you will pardon the plain language and consider not the letter but the spirit of the address, as well as make a proper application of the moral it is intended to convey.

It will doubtless be conceded by the reading and thinking members of this Association—and we should all be readers and thinkers—that, while as individual dentists we may consider ourselves “up-to-date,” yet as an organized body of professional workers we are very far behind our brethren in that respect in, perhaps, almost every other section of the country. Nor will it do in this age of steam and electricity to say, by way of excuse, that we are handicapped by distance from our confreres; that we have not the same facilities for study and original investigation which they possess. We cannot say that climatic influences have changed the character of our text-books, our

journals and other periodicals of the profession. What is it, then, which keeps us in the background of the progressive dental States? Have we no original ideas, no scientific theories of our own to bring to the light, or no inventive mechanical ability, from out of some of which Oregon may be able to set up one little "mile-stone" for the guidance of others on the road of progressive professional life? or are we ready to admit that the Oregon dentist knows no road of professional life; that he is a mere dental huxter, selling his wares for whatever he may be able to get from any shopping purchaser who may happen along? or will we consent that our professional brains have become so dull that we can gather no inspiration for an organized professional uplift in this God-given land "where rolls the Oregon," with her snow-capped peaks, her ever-fertile valleys, mineral rocks and rills, her streams and wooded hills, her fruits and flowers, her schools and colleges, her churches and public libraries, her growing cities and thrifty farms, her manufactures and her commerce? I think not. Yet we cannot gainsay the fact that there exists an apathy and lethargy among Oregon dentists which ought not to be. What are the causes, and shall we try to find the answer?

It is a trite saying that "God helps those who are willing to help themselves." So, with this quotation in mind, let each one ask himself, not what the past year has done for him in the way of dollars and cents—for, though a part, it is not all there is of dentistry—but rather what he himself has done or has attempted to do for the uplifting or advancement of his profession? Whether or not he has been acting the part of a sponge—absorbing the thoughts, the ideas and the work of his fellow-practitioners, without giving out anything in return; or whether without undue squeezing he has himself contributed something of his own to the general fund of dental knowledge; or does he, like a dead stick or stone, remain exactly in the same spot he occupied one year ago, except that he is covered with a little more moss, and is one year nearer the fossil stage of his existence. These are pertinent questions which each one

can answer to himself for himself; and if answered in accordance with the facts I think we will be able to get at some of the causes of the trouble with which the average Oregon dentist is affected. Then, again, how little any of us would or could know if each one were left, without outside aid, to his own inner resources? and, therefore, how much we are indebted to others for our knowledge, our acquirements and the manifold blessings we enjoy through their efforts in our behalf; and though each one's contribution may at the time seem but little in itself, it is in the adding of the mites of each that we reach the aggregate of all human knowledge. Therefore, do not forget that such meetings as these are for the general good, and with the proper effort on the part of each may be made profitable to all.

Now time, perhaps, will not permit us at this meeting to examine all the full, fruit-bearing trees of our professional knowledge and experience, but we can have, if we will, a few seed-thoughts that may be planted and co-operatively cultivated for future fruit-bearing. To generate these seed-thoughts may at first glance seem to be difficult; but look about you, and then learn how little it takes to generate a seed-thought that may ultimately become a fruit-bearing tree, if the mind be allowed to run in the proper channel.

It was nothing but a falling apple that generated in the mind of Newton the seed-thought of the law of gravitation; and naught but a flying kite which gave the seed-thought of the electric current to Franklin; and it was the boiling water in a teakettle which gave Watts the seed-thought of the invisible power of steam. And what was it but the pustule on the finger of a dairy-maid which gave the seed-thought of vaccination to Jenner? Even the dental engine which dentists use, in its various makes and forms, is but the development of the seed-thought of a sheep-shearer. And so I might continue on, speaking of other seed-thoughts, planted by past and present benefactors of the human race, which by proper cultivation on the part of

others have become full fruit-bearing trees of knowledge and wisdom of which we are all partakers.

But the greatest and best of all these seed-thoughts was that of the "Fatherhood of God and the brotherhood of man," planted nearly nineteen hundred years ago in a few faithful breasts by Christ of Calvary, which, by careful co-operative cultivation, has become the splendid fruit-bearing tree of a Christian civilization, and which by its uplifting power through its gentle and benign influence has made possible the development of all other seed-thoughts planted, and cultivated for the benefit of the human race. But without the all-important principle of *co-operation* these seed-thoughts, or, to change the figure, germs of progress, would have died at the moment of their birth, entirely changing the divine order of things, from life and progress to retrogression, disintegration, inertia and death.

I would have you, therefore, consider well this principle of co-operation, if you desire to advance the standard of dental progress in the State of Oregon, for it is this same principle of co-operation in successfully developing the seed-thoughts of others which has made the dental profession what it is today—honored and respected by the intelligent and progressive of every community in the land. Thus it becomes self-evident that, in order to succeed in the fullest sense as individual dentists, we must in the very nature of things co-operate with each other. But this principle of co-operation implies *compatibility* with and co-ordination of the several parts of the body before there can be full and perfect co-operation in any direction.

Now what are the facts so far as the great membership of the dental profession are concerned? Are not some of us afflicted with incompatibility? And does not the disease sometimes manifest itself in a lack of that true professional spirit which ought at all times guide us in our actions towards each other? Do we not sometimes use unkind words when speaking of a brother practitioner when kind words would be better for him and more creditable to us? Are we always careful to try to sooth the ruffled feelings of

a scolding patient of a brother dentist for an alleged error or mistake attributed to said dentist, but through the "sin of omission?" Do we not sometimes rather aggravate the case against the brother, however unjust the charge, by not offering a kindly suggestion that the patient return to the offending dentist for explanation or correction of the alleged error?

Has it not been demonstrated time and again that when such causes occur (and they have occurred in other places besides Oregon), that while all parties in interest must necessarily suffer yet, by the law of reflex action, those who are afflicted with this form of incompatibility usually suffer the most, for the very good reason that our patrons are very much like ourselves—susceptible to outside impressions, be they good or bad.

We have doubtless all seen and have listened to the sound emanating from a machine known as the phonograph; we also know that if discordant sounds are spoken into the machine, that these same identical sounds will, under the proper stimulus, be discharged therefrom. And thus it seems to me that where bad impressions are made by a dentist, either as regards himself, a brother dentist or the profession-at-large, upon human phonographs in the form of dental patrons, such impressions are apt to become indelibly fixed in the minds of such persons, and perhaps can never be entirely eradicated, notwithstanding the utmost caution and the very best service one may be able to render them thereafter.

Before closing let me give you one or two snapshot pictures of the incompatibles. Here is one: A would-be patient, a gentleman—not a lady (no, ladies never do such things; well hardly ever, well a gentlemen then)—all smiles and affability enters your dental office, and, after being seated in the chair, proceeds to pour out his "tale of woe," how that Dr. Blank has had charge of his mouth for some time past; but he is sorry to have to say that Dr. Blank has not given satisfaction; that you have been highly recommended to him as being one of the best, if not the best

dentist in the city, and are very reasonable in your prices; he, therefore, desires to make an appointment with you at as early a date as you can give him, as he is a very busy man, and his time is limited.

Now, should any such gentleman visit your office, make the appointment, but first see that "wicked dentist" before operating, and ascertain if there is not an unpaid account standing against the aforesaid would-be gentleman patient. If so, govern yourself accordingly, as it may save you from a fit of profanity, labor wasted, and the loss of other and more valuable patients.

Here is one of the Uriah Heeps of the profession, that class who are always "so very humble" that they never say anything to their patients that would sound naughty about a professional brother, but when canvassing the merits of another dentist, who is not of their ilk, they merely shrug their shoulders, heave a deep sigh and roll up their eyes in mock horror to express their abhorrence at the wickedness of dentists in general; their own dear humble selves being the only exception. This one shows the "teeth-without-plates" dental vampire, who, like his prototype, mutilates and destroys in order the better to enable him to sell his false wares for whatever he can filch from the pockets of his innocent victims, and this last one (from which most of the incompatibles originate) is of a lot of cunning ignoramuses, with little or no preliminary or special training, but depending entirely on their cunning to aid them in slipping by the sleepy sentinels who are supposed to watch and guard the gateways which open into the dental domain. Now these are not fancy pictures, but true portraits taken from dental life as it exists not only in Oregon but elsewhere in this country.

In conclusion, allow me to impress upon the mind of each one present that as members of the Oregon State Dental Association we constitute an integral part of the great working force of the American dental profession and, as such integral part, we should act in harmony with the body of professional workers in other sections of the country, and this we may do by eliminating as far as possible from our own natures all that is incompatible with successful co-

operative work ; never taking part, socially or otherwise, with the guerrillas of the profession, but ever and always making legitimate war upon them, until they are compelled to abandon their guerrilla methods or are driven out from secure the esteem of all the best elements in the profession, among us. Thus and thus only can Oregon be brought into the front rank of the progressive dental States ; and thus only shall we be able to elevate ourselves and by so doing, as well as gain the full confidence of the general public in us as professional men. While at the same time each co-worker will receive his full equivalent of such mutual co-operation.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, DECEMBER 14, 1897.

CLINIC.—Dr. Frank C. Pague. Devitalizing first inferior molar.

Discussion of clinic was postponed until meeting of Tuesday, December 21st.

MEETING OF TUESDAY, DECEMBER 21, 1897.

CLINIC.—Dr. S. L. Strickland. Making amalgam.

EXHIBIT.—Dr. Frank L. Platt. Mouth lamp. The exhibit was a Ritter Dental Manufacturing Co.'s lamp, fitted with a mirror-reflector and a larger lamp than it originally held. It was fitted with a sixteen-candle power lamp in circuit, so as to be attached to the 110-volt current. It gave a very penetrating, bright light, and generated very little heat.

DISCUSSION.—DR. PAGUE'S CLINIC.

Dr. F. C. Pague.—In giving the clinic I had a two-fold object. First, to illustrate my manner of destroying the vitality of a tooth, and, second, to bring out a general discussion of the treatment. With the exception of devitalizing by cataphoresis, I devitalize all teeth with the preparation I used, crystals of arsenic and powdered alum; and into the two I place a drop of campho-phenique, and then take up the whole on a piece of S. S. White devitalizing fibre, placing in the cavity and sealing with cement. To avoid pain, I mix the cement to flow over the cotton in the cavity, flowing the entire cavity with cement. I leave that preparation in the cavity from five to eight days. In two or

three days after placing it there the patient suffered some inconvenience at night—gritting the teeth as in pyorrhea. Since then there has been no aching and no soreness. If I had, as I hoped to do, brought the patient here this afternoon, and opened the cavity, we would have found the pulp devitalized, and it could have been removed intact.

Dr. Platt.—For a year or more I have been using the same preparation, and in place of campho-phenique sometimes oil of cloves. I usually find the pulp devitalized in from three and one-half to seven or ten days. In the majority of cases I use temporary stopping. Until a week ago I had had no failures. One patient picked out the stopping, the arsenic leaked into the mouth causing trouble. I think I shall adopt Dr. Pague's plan of placing a thin layer of cement to avoid leaking. I think that I have more trouble devitalizing teeth than with anything else in dentistry. I shall be very glad if the discussion will bring forth a method of devitalizing all the pulp with little pain. Sometimes two-thirds of the pulp is removed, and to get the remainder out causes periodontal inflammation. A further use of arsenic is inadvisable. I don't believe it is possible to so cap an exposed pulp that it will remain free from pain for any length of time. I have used the S. S. White devitalizing fibre—the devitalizing paste made of cocaine, morphia, arsenic and oil of cloves; I believe this is recommended by Dr. Flagg. In some cases it works very well, but in others there is that superior third of the pulp that is not so easily devitalized.

Dr. Lundborg.—I have not for years used any arsenical preparations. I have used a preparation the formula of which I confess I don't know. It seems to mummify the pulp. I believe it is tannic acid, creosote and cobalt. It has worked like a charm. I introduce it over an exposed pulp and let it remain sealed up for three or four days. When I remove the cement I find it mummified and its sensitiveness entirely gone. I have removed the pulps from all three canals of a molar without trouble. After removing the pulp I wash the canals thoroughly with diluted alcohol, and in many instances force aristol up to the apex of the

root and allow it to remain until I consider it a proper time to fill the tooth.

Dr. Platt.—Does that cause pain?

Dr. Lundborg.—If you use pressure. Otherwise not.

Dr. A. F. Merriman Jr. said that he had found iodoform an admirable assisting agent in devitalizing pulps, the only objection to it it being its bad taste if permitted to escape into the mouth. It should be applied with a certain amount of tannin, arsenious acid and oil of cloves (the iodoform to destroy the gas), mixed with carmine, so that if a second application is necessary the first application can always be located. It requires a very small amount to devitalize the pulp of a tooth, the amount that can be taken on the point of a pin being as efficacious as the amount on the point of a knife. It will relieve the pain in a short time; relieve the pressure of gas and devitalize the pulp in a few days. Confine in the cavity with gutta-percha, cotton with cement in a creamy solution, or sandarac varnish.

Dr. R. H. Cool.—As I have ruled that we must discuss the clinic only, I am a little bit at sea. In all truth the operation was diametrically opposed to what I practice myself. There was no inflammation of the pulp, no perfect exposure. It was one of those cases where the tissues over the pulp was very thin. It was just such a case as I prefer for devitalizing the pulp by immediate extirpation. I don't think that in three years I have used arsenic that many times. The operation was cleverly performed, the method scientific, but, I think, out of date. I don't believe that devitalizing with arsenic is proper in a case like the one presented. I have tried everything presented here to-night. I have found that the condition of inflammation must be taken into consideration. If there is irritation of the pulp, that must be removed. If there is congestion, that must be reduced; if there is suppuration, surely you would not want to use an arsenious preparation. The pathological condition of the pulp must be studied. If I use arsenic I first apply an alkaline to neutralize the acidity of the cavity and then use a warm antiseptic wash. My method is immediate extirpation of the pulp with a hypodermic syringe, with the needle cut off blunt. Inject a satu-

rated solution of cocaine in chloroform, first keeping the needle a little distance from the pulp, injecting a small amount quickly and with force, then placing the needle over the exposure and injecting until I find I can place the needle into the pulp. The moment you place the needle in you create a zone of anesthesia. I have advocated this method since this club started, and use it constantly. I have had few cases resulting in pericemental inflammation. Have used this method in every tooth in the mouth, but have not been able to use it in the post-proximal surface of wisdom tooth. I claim no originality; probably a development of a method I have seen or heard of. Never apply arsenic directly on the pulp.

Dr. Platt.—I have found that on patients of a lymphatic temperament arsenic can be applied directly on the pulp, but on nervous, bilious patients it will cause extreme pain.

Dr. Cool.—Simply take the crystals of cocaine with any media and apply.

Dr. Hackett.—Ever any toxic effects?

Dr. Cool.—No; because the hemorrhage throws off any cocaine that may be injected. As to a portion of the pulp not being removed you can use cocaine there and remove it.

Dr. Lundborg.—When I want immediate results I use cocaine, but have been troubled with hemorrhages afterward which I feared would result in inflammation at apex of root or periosteal inflammation. Only use this method when the patient requires immediate filling.

Dr. Cool.—I think some hemorrhage advisable; there is no better antiseptic; it throws off everything and lessens the danger of periosteal trouble. I don't practice immediate root-filling in every case, but in a majority.

Dr. Merriman Jr.—When hemorrhage continues unduly, 3-per-cent. pyrozone will stop it. I also believe hemorrhage an advantage rather than a disadvantage.

On motion, club meetings were adjourned to January 4, 1898.

OAKLAND DENTAL CLUB.

THE January meeting of the Club was held at Drs. Shuey and Allen's office, East Oakland, on Thursday evening, the

6th. President Corwin presided, and Dr. G. E. Shuey acted as secretary pro tem.

The minutes of the previous meeting were read and approved.

Dr. James Plunkett was elected to membership.

On motion, the time for the next meeting was fixed for the first Wednesday in February (the 2d), instead of Thursday, as heretofore, at which time action will be taken to maintain the change permanently, as there are a number of members who are unable to be present on the first-named day. The question of having a regular meeting-room and headquarters for the Club, wherein it can maintain a library and museum, etc., will also be presented for consideration, the rapid addition of membership demanding a fixed assembly-room for its meetings.

Dr. Wm. A. Bryant, of San Francisco, having been invited to address the Club on one of his specialties, spoke of antral and dental abscesses and the method of their treatment with the use of pure oxygen. The Doctor also exhibited an electric mouth-lamp of his own invention. The Club tendered a vote of thanks to Dr. Bryant for his instructive address.

The February meeting will be held at the office of Dr. H. D. Boyes, Clay and Thirteenth streets. Dr. H. G. Chapel is announced as the essayist for the evening.

SAN FRANCISCO DENTAL ASSOCIATION.

THE afternoon session of the Association was opened with a clinic by Dr. Charles E. Post. The operation consisted of placing a porcelain inlay in the anterior proximal surface of the left superior lateral. The matrix for the inlay was obtained by burnishing No. 60 platinum foil in the cavity with the aid of cotton pellets, which were packed into the cavity to force the foil to place and to avoid tearing it, as would be done if steel burnishers, instead of cotton, were used. The clinician stated that a cavity of this kind should be so shaped that the inlay can be slipped into the cavity from the palatal surface, and the cavity

should have at least three walls and be dove-tailed, so that the filling will be retained and not displaced by lateral pressure; also that the teeth should be widely separated so that when they are returned to their original position the adjoining tooth will aid in retaining inlay.

The evening session of the Association's initial meeting of the new year had a fair attendance, Dr. Platt presiding.

Dr. Thomas Morfiew presented a report from the auditing committee on the books of the officers for the official year closed. A number of suggestions and recommendations in the matter of the keeping the books of the Association and the remission of dues of several invalid members were submitted and adopted.

The Membership Committee reporting favorably on the applications of Drs. W. F. Lewis, G. S. Donnelley, Medora V. Crowell, G. W. Sichel, J. B. Tufts and H. D. Stiles, on ballot they were elected to membership.

Dr. C. L. Goddard, for the committee, reported the draft of the following resolutions of respect to the memory of the late Dr. Henry E. Knox:

WHEREAS, It has pleased Almighty God to remove suddenly from the midst of his active labors, our fellow-member, Dr. Henry E. Knox,

Resolved, that this society hereby desires to place upon record their high appreciation of his manly Christian character, and of his high professional standing as well as his genial and pleasant presence.

Resolved, that we mourn his death as a personal as well as professional loss, and hereby desire to testify to our high appreciation of the efforts he always and at all times gave to the profession of his adoption, and his devoted activity to the advancement of its welfare.

Resolved, that we mourn with his afflicted family, and extend to them in this hour of trial our sincere and heartfelt sympathy.

Resolved, that a copy of this resolution be sent to his family and be placed upon the minutes of our society, and be published in our dental journals.

C. L. GODDARD,

J. A. W. LUNDBORG,

L. VAN ORDEN.

Dr. Goddard also read a biography of Dr. Knox, which, on motion, was with the resolutions accepted with the report and ordered spread on the minutes.

Dr. L. Van Orden, of the Furnishing Committee, reported that a newly improved bookcase had been placed on the market, which had caused the committee to defer purchase until its merits could be reported to the Association.

On motion the committee was authorized to purchase on its own judgment.

Dr. Frank C. Pague, from the committee appointed to communicate and confer with the Board of Education in the matter of presenting instruction on dental hygiene to the pupils of the public schools, reported that a communication had been sent to the Board, and the committee was awaiting a reply.

On recommendation of the Executive Committee an appropriation of \$5 was made to defray cost of clerical assistance in clearing the books of the Association.

Five new applications were received and referred to the Committee on Membership.

Dr. L. Van Orden said that in sending out invitations to membership there had been an omission to accompany them with application blanks, and, therefore, moved that the invitation be again mailed, accompanied by the blanks. So ordered.

Dr. Goddard called attention to a volume entitled "Encyclopedia of Face and Form Reading," by Mrs. M. O. Stanton, of San Francisco, which he considered was a good work to place in the library, as it was a guide for the study of contour in orthodontia. The librarian was instructed to examine it with a view to its purchase.

Dr. Thos. Iglehart moved that the secretary be instructed to procure new minute-books, and that each member volunteer to write up a year's minutes from the old records into the new. A number of members volunteering, motion was carried.

Dr. L. Van Orden called attention to the matter of routine business, as transacted by the body of the society, consuming too much time, which interfered with the time for papers and discussions and consideration of clinics. On motion it was carried that hereafter routine work be decisively acted on by the various committees.

In the absence of Dr. Post the discussion of his clinic was passed.

Dr. Platt, as essayist for the evening, then read a paper entitled "The Value of Interrogation." The topic being out of the groove the discussion, though bright, had the

merit of brevity. (The paper will be printed in a future issue of the GAZETTE.)

Dr. H. L. Seager will be the essayist, and Dr. F. L. Platt the clinician for the February meeting.

SOUTHERN CALIFORNIA ODONTOLOGICAL SOCIETY.

THE twelfth annual meeting of this society was held in the assembly-room of the Chamber of Commerce, Monday, December 28, 1897, at 10 o'clock A. M.

Business of the society occupied most of the morning session. At the afternoon session Dr. John C. McCoy read a paper on "Listol, Hydronapthol and Aristol in Dentistry." Drs. E. L. Townsend and D. R. Wilder read papers relative to crown and bridge work and regulating teeth.

F. A. Seymour, M.D., of Los Angeles, read a paper on the subject of "Bacteriology of the Mouth," setting forth the importance of exercising greater care on the part of dentists in the sterilizing of their hands and instruments before operating on patients. Dr. Seymour stated, however, that tuberculosis was less liable to be communicated in this way than were many other diseases.

The semi-annual meeting of the society will be held in San Diego next July.

The officers elected for the ensuing year are:

President.....	J. D. Moody.
Vice-President.....	H. R. Harbison.
Secretary	F. M. Parker.
Corresponding Secretary.....	J. C. McCoy.
Treasurer.....	J. M. White.
Librarian.....	F. J. Bethel.
Extra Director.....	D. R. Wilder.

SACRAMENTO COUNTY DENTAL SOCIETY.

THE regular meeting of the society was held at the office of Dr. W. A. Root; President Metcalf in the chair. Routine business being disposed of, it was determined to mark the last meeting of the year with festivity and pleasantries, and the genial host having provided appetizing refreshment a jubilee time was had.

MEETING OF GENERAL COMMITTEE OF PACIFIC COAST DENTAL CONGRESS.

At the call of Chairman W. F. Lewis the General Committee met at the room of the San Francisco Dental Association on Wednesday evening, January 19th. There was a good attendance of city and Oakland delegates. Dr. E. L. Townsend, of Los Angeles, being present as a visitor, was, on motion, elected to represent the Southern California Odontological Association on the committee.

Dr. Goddard, of the Committee on Affiliation, under head of reports of committees, read a communication from President Fillebrown, of the National Association, dated subsequent to last meeting of the committee. Among a number of expressions and suggestions the letter contained the following:

I personally think you had better not for a moment consider giving up your Coast Congress until the way seems clear [for affiliation].

Do your State societies confine their membership to residents of the several States? If not, make the few men living where there is no State society, who would like to attend the National Association, members of one or the other societies that are already organized, and send them along as delegates. They would not need to attend your State meeting, so would not be subject to double expense.

I would not confine the delegates to anyone in ten, but let your secretaries certify all that want to come and we will contrive some plan to give them a chance. Surely they will be welcome.

Dr. Goddard concurred with the expressions and suggestions conveyed in the communication, and, considering that nothing more could be done at present, recommended that the matter of affiliation be held in abeyance until the committee deemed it expedient to resume the work. On motion the recommendation was adopted.

The Committee on Ethics, through Dr. W. A. Knowles, reported that it had made considerable effort to obtain tangible evidence on which it could base charges for a trial of Dr. H. Griswold, of Salt Lake, an official member of the Congress, for violation of the code of ethics. The correspondence with parties in Salt Lake had failed to produce sufficient specific evidence on which to formulate charges. Had endeavored to get photographic evidence, but without

success. The general charges of promiscuous advertising about the country, were fixed at periods of time from one three years prior to the Congress. The committee therefore, were of the opinion that nothing more could be done in the matter.

The Committee on Revision of Constitution, reported that it was awaiting the action of the Committee on Affiliation.

It being deemed inexpedient to further consider the holding of the Congress at Salt Lake, because of lack of harmony in the profession there, the question of meeting elsewhere was taken up.

Chairman Dr. Lewis read a letter from Dr. G. H. Chance, president of the Oregon State Dental Association, which suggested that the Oregon Association meet jointly with the Congress, after performing the routine work and electing officers of the Association, and pooling its essay and clinic programs with those of the Congress. Dr. Chance also said that the matter would be formally considered by both the Association and the Stomatological Club of Portland, and the result given.

Dr. Goddard here read a letter from Dr. W. A. Cumming, as the official representative of the above-named societies, formally inviting the Congress to meet at Portland.

On motion, it was deemed the sense of those present that the communication be received by the committee, and that the invitation to meet at Portland be accepted.

The Secretary was then instructed to send to each member of the General Committee a return postal-card notice of the invitation, asking that an expression of opinion be returned.

A motion was then offered that it be considered within the power of the General Committee to declare offices vacant. The motion was ruled out of order.

Dr. Goddard raised the question of the boundary of the jurisdiction of the Congress, suggesting that it be confined to the States of Washington, Oregon and California, in order to enable a thorough acquaintance with the personnel of the membership.

On motion it was voted as the sense of those present that the jurisdiction of the Pacific Coast Dental Congress should embrace only the States named.

The question being asked if the motion would exclude from membership anyone from other territory now a member of the Congress, the Chair ruled that it did not; all members of the last Congress were permanent members.

Adjourned to call of the Chair.

General Medical Miscellany.

FOLLICULAR TONSILITIS.—This is an acute infectious disease, and should be treated as such. Whilst systemic treatment is of paramount importance, local treatment should not be neglected. Each crypt should be carefully cleansed with a strong solution of hydrogen dioxid, then applications made to each with solution of silver nitrate, forty or sixty grains to the ounce. Involvement of the pharyngeal or the lingual tonsil should receive similar treatment.—[Philadelphia Polyclinic.]

INFLUENCE OF COLD UPON SECRETION OF URINE.—The increase in the quantity of urine by the action of cold upon the skin has been carefully studied by M. Lambert. It occurs immediately with the beginning of the irritation or just subsequently thereto. The immediate increase depends upon augmented blood-pressure acting upon a dilatable or but weakly contractile kidney; the subsequent increase depends upon the rapid dissipation of the tone of the renal vessels. Possibly the secretory nerves of the kidney play some part.—[Schmidt's Jahrb.]

TOXIC EFFECTS OF DILUTED CARBOLIC ACID.—It will strike many with astonishment when it is said that it would be safer to pour a gallon of pure carbolic acid into a purulent thoracic cavity than to pour in a gallon of water into which a single ounce of carbolic acid has been placed. To go even further, it is said that excess of the strong acid in a cavity such as an abscess cavity, or on exposed tissues, as a burn or a fresh wound, does no harm, while excess of a dilute

solution, if left in a cavity or used over an extensive raw surface, will be promptly followed by dangerous, if not fatal toxic effects.—[Dental Digest.

X-RAY BURN.—Dr. George R. Green reports a case of a patient upon whom the X-ray was used, for the purpose of obtaining a skiagraph of the knee-joint. After two X-ray examinations there appeared a vesicular erythema at the site of the X-ray application, covering the entire knee-joint and limiting itself to the locality subjected to the influence of the rays.

After persistent treatment the eruption healed with the exception of one point, about one and one-half inches long, one inch wide, where sloughing occurred. The ulcerating surface became exceedingly irritable and sensitive and covered with a dirty-gray pseudo-membrane, which up to the present time has resisted all efforts to effect granulation and healing.—[Fort Wayne Medical Journal.

SOZOIODOLE IN DISEASES OF THE NOSE AND THROAT.—Dr. Morcinowski writes that the salts of soziodole have proved themselves remarkably effective in his hands in the diseases of the nose and pharynx. He uses a mixture of menthol, zinc-soziodole, and boric acid, and thoroughly inflates with it the upper-air passages by the means of a pulveriflator. He has cured himself of a severe catarrh of eight years' standing by means of this mixture; but he had to employ it for several months.

He has used the combination in very different affections, acute and chronic, and with invariably good results. In follicular tonsilitis he uses also, in conjunction with the powder, a 1- to 2-per-cent. solution of sodium-soziodole by the means of a spray. The same treatment he employs in diphtheria, and the result has been so favorable that he has not yet felt called upon to employ antitoxin.—[Aerzt. Rundschau.

METHYLENE-BLUE IN MIGRAINE.—Induced by the favorable reports of Drs. Immerwahr and Bruno Levy, Dr. Bruckner employed methylene-blue in a most obstinate and violent case with magical results. The patient was an 18-year-old

neurotic girl, who for weeks had been tortured with most violent, excruciating headaches, that deprived her of sleep absolutely, so that she feared she would go insane, as her father did. After all the usual remedies failed, methylene-blue was administered. After two capsules of $1\frac{1}{2}$ grn. each were taken, the headache disappeared ("as if blown away," as the author says). Six capsules were taken in all, and the headaches have not returned. It is worthy of notice, that in this patient not only the urine was blue, but the entire body, and especially the sclera, was of a bluish tint, which disappeared in a few days. Each capsule contained a grain and a half of methylene-blue, with the same amount of powdered nutmeg.—[Aerzt. Runds.

EFFECT OF TEA CIGARETTES.—The *Quarterly Journal of Inebriety* calls attention to the tea cigarettes as one of the most injurious and dangerous of the new fashions.

Tea cigarettes are made of a grade of green tea which has but little dust, and is composed of unbroken leaf. This is dampened to make the leaves pliable and capable of being stuffed in the paper cylinder, while the dampness is not sufficient to stain the paper. The cigarettes are laid aside for a few days and are then ready to be smoked.

The feeling of a tea cigarette in the mouth is peculiar. The taste is not so disagreeable as might be supposed, but the effect on the tyro is a sense of thickening of the head and a disposition to take hold of something or sit down. If the beginner stops then, he will not try tea cigarettes again. If, however, the smoker sits down and tries a second cigarette, inhaling it deeply, then the thickening feeling passes and is succeeded by one of intense exhilaration. This stage lasts as long as the smoke continues.

The agony of the opium fiend is a shadow to that of the nauseated victim of the tea cigarette. Food cannot be looked at for hours, yet the first step towards a cure is a cup of tea. An hour afterward comes the craving for a cigarette.

VALUE OF ANTISEPTIC SOAPS.—Curzio has made an experimental study to ascertain the value of the so-called antiseptic soaps as to their aseptic and antiseptic properties. He

dissolved in sterilized distilled water the superficial and the inner parts of the soaps separately, and inoculated them into nutritive media (agar-gelatin). Besides he treated the pure cultures of *staphylococcus pyogenes aureus* with solutions of the said soaps, with the view of studying the change in the vitality of the micro-organism.

He chose the *pyogenes aureus* because it is one of the most common and most resistant micro-organisms, and because of the ease with which the morphology may be studied. He concludes as follows:

1. Sublimated (1 per cent.) soft soap is not aseptic and has not any antiseptic value, even if the experiment lasts for twenty-fours.

2. Sublimated (1 per cent.) hard soap has very little antiseptic value, as it necessitates a continuous action of twenty-four hours to prevent the development of the *pyogenes aureus*.

3. Carbolic acid (10 per cent.) soap shows less aseptic properties and no antiseptic action at all.

Salicylic acid (3 per cent.) and boric acid (5 per cent.) soaps are aseptic in the true sense of the word. As to their antiseptic value, both have great power (the boric acid soap being less so), and they prevent the development of the micro-organisms after a few minutes.

Carbolic acid and bichloride of mercury lose a great amount of their antiseptic power in contact with the compounds of the soaps, so in practice salicylic and boracic soaps are better. But, if not for surgical purposes, i. e., in dermatology, especially when they are used for a long time, all of them may be employed with benefit.—[*La Settimana Medica*.

ORTHOFORM—A NEW ANESTHETIC.—Eichorn and Heinz, of Munich, have discovered a new anesthetic of singular power: a preparation of "benzo-methylic ether," for which they publish the formula, and to which they give the name of "Orthoform." Used in form of powder it is said to extinguish the pain of deep burns, at present the despair of surgeons. The relief lasts many hours, and the application can be renewed with safety from time time. No evil

results followed a case where a patient, suffering from a terrible form of ulcer, had been sprinkled for a week. It has been administered in large doses to arrest the pain of cancer in the stomach.—[Dominion Dental Journal.

OCULAR NEURALGIA.—Markoff treats ocular neuralgia by dropping into the eye five to six drops of a one third or one-half per cent. solution of cyanide of potassium or a neutral solution of

Quinine Hydrochloride.....	1.	gramme
Morph.....	.05	"
Aquæ.....	10.	"

No neuralgia can resist one or two instillations.

CONNECTION BETWEEN FRONTAL AND MAXILLARY SINUSES.—Dr. Fillebrown, of Boston, found eight different specimens in which the infundibulum instead of terminating in the middle meatus continues as a half tube, which terminates directly in the foramen of the maxillary sinus. In seven of these specimens there was a fold of membrane which served as a continuation of the uniform process, and reached upward covering the foramen, forming a pocket which effectually prevented any secretion from the frontal sinus getting into the meatus until the antrum and pocket were full to overflowing.—[New York Medical Journal.

STUDY OF EYE-FATIGUE.—Kotz, a European investigator, has found that eye-fatigue may be easily studied by counting the number of winks per minute. He adopted this method in studying the effects of different methods of lighting upon the eye, as follows: With a candle, 6.8 winks, per minute; with ordinary gas, 2; with sunlight, 2.2; and with electric light, 1.8; from which it appears that the electric light is even superior to sunlight as a means of illumination. Professor Kotz concludes that any form of lighting which produces more than three winks per minute should be considered harmful, and should be rejected.

WOMEN PRACTITIONERS.—The first medical diploma conferred upon a woman in modern times was given by the Medical College of Geneva in 1849; while in the dental

profession Miss Lucy B. Hobbs-Taylor, of New York, has the distinguished honor of receiving the first dental diploma, having graduated from the Ohio Dental College in 1866. At present there are nearly three thousand women engaged in medical practice throughout the United States. In the dental profession there are only about one hundred women graduates in practice, with, perhaps an additional seventy-five or one hundred practicing under a permit.

Dental Excerpts.

...IN INFLAMMATION OF THE GUMS, in cases of stomatitis showing on the external plates of the alveolar walls, in most cases of turgidity, or disturbed circulation about the gingiva, massage with the ball of the finger will be found very useful. It presses the blood out of the distended capillaries, hurries the circulation in the sluggish blood-vessels, and gives tone to the whole local territory, re-establishing the nutrient currents and promoting resolution of any exudate material. Let the patient rub the gums and disturbed territory with the ball of the finger frequently.—[W. C. Barrett, M.D.]

CANNABIS INDICA AND OPIUM IN DENTISTRY.—Cannabis Indica is like opium; in large doses, a narcotic poison, its effect is anodyne. As a topical remedy for preventing pain in extraction, I have used it for more than ten years with very gratifying results in many cases; its action however, is not entirely reliable. It may be applied on pads of cotton to the gum on each side of the tooth for five minutes before operating; in all cases the gum should be dried before making the application.

Opium is a narcotic poison in large doses, and as an anodyne, is unrivaled for relief of pain, and is a powerful aborter of inflammation. There is absolutely no remedy equal to it to relieve pain and induce sleep; by this action it controls nervous and vascular irritability. Opium also has sedative power when locally applied, as well as when internally administered.—[Dr. C. G. Edwards, Louisville.]

To HARDEN PLASTER boil in paraffine. To give your plaster casts or models the appearance of ivory, boil them in pure white wax.

NONCOHESIVE FOILS MADE COHESIVE.—Any of the noncohesive foils, with one exception, which is not a pure gold foil, can be made cohesive by continued annealing; and all of the cohesive foils without exception can be made noncohesive by exposing them to the fumes of ammonia.

Correspondence.

AN INCIDENT OF OFFICE PRACTICE.

EDITOR GAZETTE:—I send you the following incident which may be of interest to your many readers. I wonder if such happens in any state other than Nevada.

A lady recently called at my office and politely informed me that she wanted her daughter's teeth examined, as they had been causing her considerable trouble. After unwinding many feet of scarf that encircled the child's head she was placed in the chair, after the usual amount of coaxing, stamping and parading up and down the floor by the anxious parent.

On examination I found the left superior molar broken down and ulcerated. I advised extraction. The mother looked grave, while the child screamed. Finally the parent collected her thoughts and asked if I had any "vulcanized air," and if the "attitude" of Carson City was so high that her daughters life would be endangered. Then, after soliloquizing for a time and looking very learned, remarked that when the tooth was gone her child would have a time "damastacating" her food.

After many attempts and coaxing the child was at last induced to allow the operation. In a few days, by appointment, they again called to have a lateral and central filled. The rubber-dam was adjusted, and while getting the silk thread ready to tie, the girl began crying and said she did not wish her cavities sewed up with a string.

Carson City, Nev.

J. C. H.

News Miscellany.

HYDROSTATICS teaches us the wonderful fact that a few pounds of water, without the aid of any machinery, will, by mere pressure, produce an almost irresistible force, or in other words, that any quantity of fluid however small, may be made to counterpoise any quantity, however large, and hence a very strong hogshead has been burst to pieces and the water scattered about with incredible force by the simple means of conveying water to it through a very small perpendicular tube of great length.

SPIDER'S SILK is even finer than that spun by the silkworm. Historians say that Louis XIV was presented with an entire suit woven from spider's silk. It is more glossy and more brilliant than any other, its natural color when woven being a rich golden, and it is capable of being dyed to any color desired. It is stated by an eminent entomologist that he took 3,480 yards (or about two miles) of silk from one spider.

A GLASS has been invented with a partition in the middle, by means of which disagreeable tasting medicine is separated from some highly flavored liquid or wine which bathes the lips and mouth before the dose is swallowed.

A RICH deposit of platinum has been discovered in Jack county, Texas, by expert miners from California. On sinking a 110-foot shaft numerous samples of platinum were found at a depth of fifty feet.

WHAT WE ARE COMING TO.

We have boiled the hydrant water,
We have sterilized the milk;
We have strained the prowling microbe
Through the finest kind of silk;
We have bought and we have borrowed
Every patent health device,
And at last the doctor tells us
That we've got to boil the ice.

—[Retail Druggist.]

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

THE FIELD BROADENING.

EVERY one who has kept even reasonably well posted in the dental literature of the past few years cannot have missed noting the gradual increase in the number and variety of the subjects treated in thesis, discussion and clinic by the workers and leaders in the field of dental development. From a simple consideration of matters pertaining strictly and solely to dental histology, pathology and therapeutics the field has broadened until now the entire realms of medicine and surgery bid fair to be invaded and made to yield their tribute to the mass of knowledge at present considered indispensable by the up-to-date active, inquiring practitioner of modern dentistry.

Nor has this been a one-sided, selfish line of progress benefitting the dentist alone, for, while he has labored unceasingly to benefit his own profession, his work has been largely retroactive, and the allied professions of medicine and surgery have learned to see in dentistry something more than a trade and to regard it with the respect due a profession equal to them in its scientific achievements and beneficent practices.

As the literature of a profession must keep even pace with it, to be of either historical or didactic value, so too, the literature of dentistry must continually broaden and endeavor to include within its grasp all that pertains not only to the science and practice of dentistry by itself, but also all that is correlative to it.

Putting this theory into practice the editor and publisher of the PACIFIC MEDICO-DENTAL GAZETTE purpose to give to

its readers, with the advent of the year a journal devoted primarily to the advancement of dental science, but containing a fund of information alike attractive and indispensable to the practitioners of other special branches of the healing art.

Under a new and more comprehensive title the GAZETTE enters on its sixth volume, its confidence in the future sustained by the history of its past, and, profiting by experience, assures its readers and contributors of a better, broader and more valuable journal than they have heretofore possessed on the Pacific Coast.

THE TRIBULATIONS OF EDITING.

THE definition of the transitive verb "to edit" includes the selection, preparation and revision of material for publication, and so opens quite a large field to the discrimination and labors of the editor. Much of the material sent in to journals for publication, and much of the matter collected by reporters from the proceedings of societies would be amusing were it not pathetic in its varying degrees of value. Much of it has to be rewritten, much eliminated, and much is published with editorial hesitancy and a foreboding of coming evil.

It is difficult for those not actively associated with journalism to realize that much that is said and written on scientific subjects does not pertain to the subject under consideration, and in itself is of no value whatever to the disinterested listener or reader; and it is even more difficult for the editor to say just where the line can be drawn without fear of giving offense.

Let each speaker or writer confine himself strictly to the subject in hand; let him make all his statements in such a concise and lucid manner that their meaning is easily understood, and the value of their publication will be increased in proportion as will be lessened the labor of the editor and the wear and tear on his scissors and pencil.

These observations are prompted by a recent circumstance of a plaint of a well-meaning but supersensitive

tempered member of an association, who, unfortunately, labored under the impression that having delivered himself of a disquisition on a special method of operation in which he prided himself, found that his remarks had been eliminated because they were not germane to the special subject of discussion. It was difficult with him, as it has been with many another enthusiast, without doubt, to appreciate the fact that "there is a time and place for everything," and that irrelevant remarks must be absconded at the stage of publication.

CHANGE OF PLACE OF MEETING.

THE report of the last meeting of the General Committee of the Pacific Coast Dental Congress, printed elsewhere in this issue, indicates that the meeting announced for this year will not be held at Salt Lake City "because of lack of harmony among the profession there." The active members of the profession in Oregon have held out strong inducements to the committee to hold the congress at Portland. A vote of the entire committee is being taken, and it probable that that city will get the meeting.

NOTES.

THE *American Dental Weekly*, of Atlanta, Ga., edited by Dr. B. H. Catching, has now reached No. 16, of Vol. I, and seems to evidence as a fact through its success that a weekly dental publication was wanted by the profession. In its 16-page octavo form it presents clean, newsy, reading matter, evidencing careful selection, and of value to everyone wishing to keep abreast of the times in dental literature. Subscription, \$2 per year.

THE Odontographic Society of Chicago, the largest dental association in the United States, excepting the National Dental Association, will celebrate its tenth anniversary, February 21st and 22d, 1898. The convocation will extend over two days, and consist of clinics and scientific papers from men specially distinguished and representative in the science of dentistry.

PERSONAL.

DR. A. C. HART has moved to the sixth floor of the Spreckels building.

DR. E. L. TOWNSEND of Los Angeles, was a visitor to San Francisco on the 18th inst.

TRUMAN W. BROPHY, President of the National Association of Dental Faculties, and also dean of the Chicago College of Dentistry, is announced to visit the Pacific Coast soon.

DR. EDGAR PALMER, formerly of Denver, Colo., has taken up his residence in Los Angeles, Cal., and has opened an office at 307 South Broadway, of that city, where he will be pleased to welcome his professional friends.

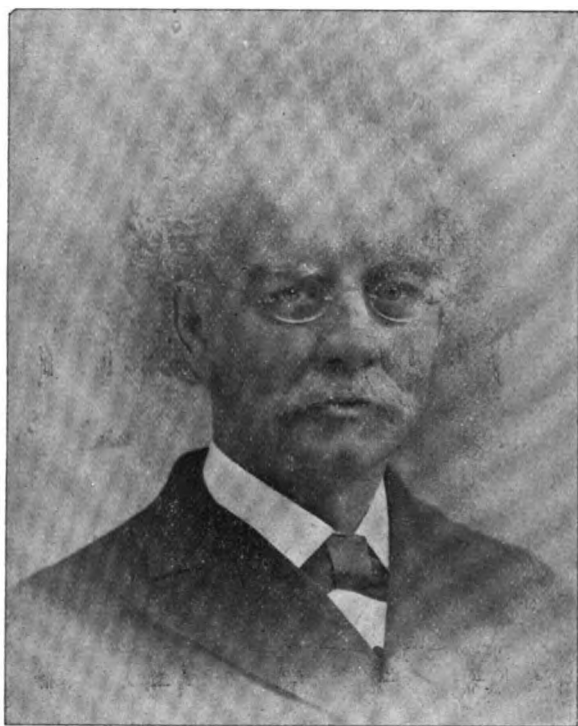
DR. HARRY P. CARLTON, instructor in operative technic in the University of California College of Dentistry, represented the College Faculty at the recent meeting of the National Association of Dental Technic. Dr. Carlton says that much real progressive work was accomplished at the meeting, and not the least feature was the harmonious courteousness with which each method of technic was received and listened to. The GAZETTE will present an abstract of the Doctor's report to the Faculty in its next issue.

Publisher's Notes.**THE L. L. WHITE TOOTH-CROWN CATALOGUE.**

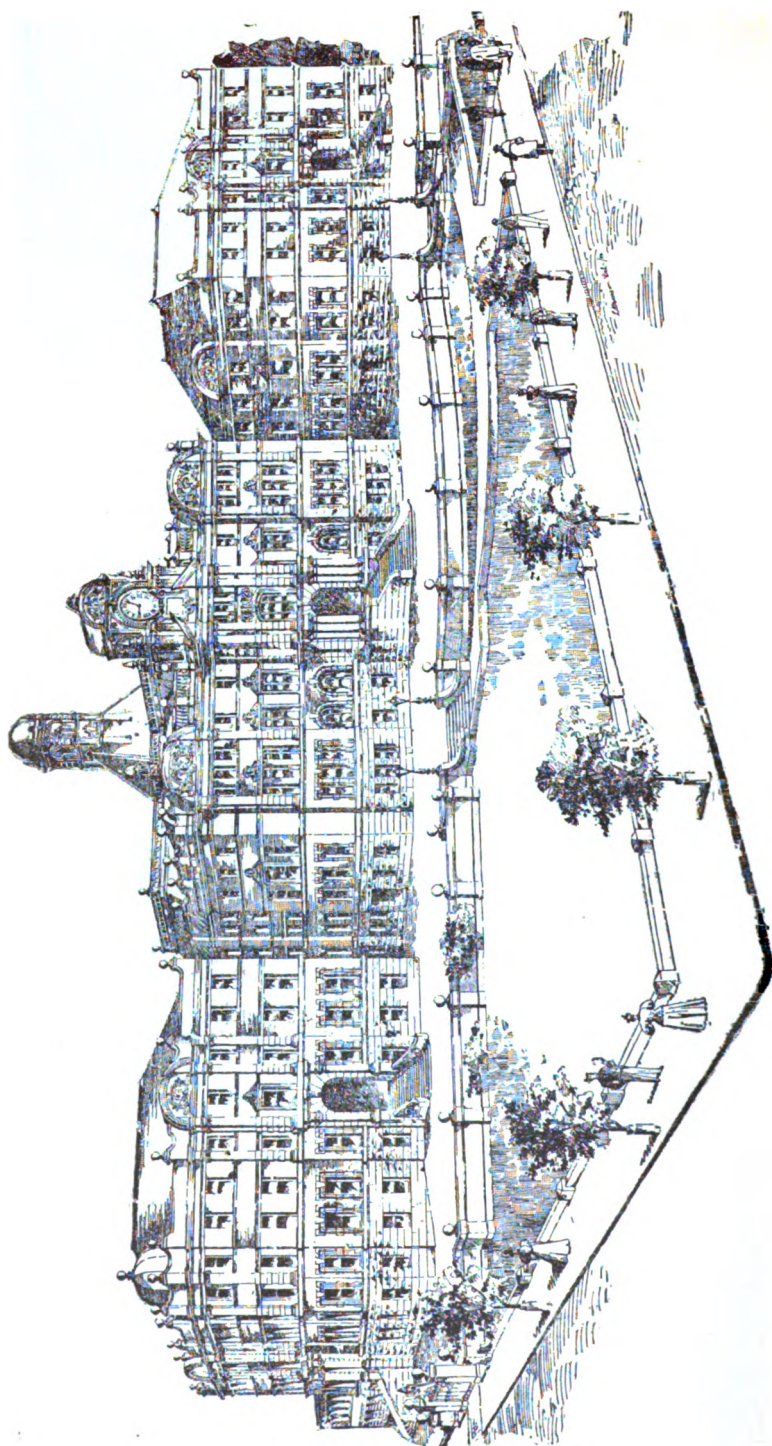
THE L. L. WHITE Tooth-Crown Co. has issued an elaborate catalogue of its tooth-crown and bridge product. The value of the catalogue is augmented by the printing of the illustrations in colors, thus giving natural effects. The various departments of the office and laboratory are clearly presented in half-tones.

DENTAL RECORDS.

DR. HERBERT C. MILLER's dental records makes dental book-keeping very simple. The diagram of the teeth is anatomically correct. The records are handsomely bound in two styles—cloth and half morocco. The records are presented in five different sizes, containing 240 to 500 pages, and range in price from \$1.00 to \$4.00. Address orders to Herbert C. Miller, 408-9 Oregonian Bldg, Portland, Or.



HENRY E. KNOX, D.D.S.



BUILDINGS FOR THE COLLEGES OF MEDICINE, DENTISTRY, PHARMACY AND LAW OF THE UNIVERSITY OF CALIFORNIA.
Opposite Golden Gate Park, San Francisco. These buildings are expected to be ready for occupancy for the Session of 1898-9.

Pacific Medico-Dental Gazette

VOL. VI. SAN FRANCISCO, FEBRUARY, 1898. No. 2.

Original Papers.

THE NECESSITY FOR HIGHER EDUCATION IN DENTAL MATRICULATES.

BY FRANK L. PLATT, D.D.S., SAN FRANCISCO, CAL.

(Read before the San Francisco Dental Association, November 8, 1897.)

A LITTLE learning is a dangerous thing;" and the greatest danger threatening the dental profession to-day is the little learning possessed by many of its members. We note the progress our profession has made in the last three-quarters of a century, and point with pride to the fact that in the same length of time no other liberal profession has kept pace with it in either general or special advancement. We see the gradual progress from the barber-shop era of tooth-extraction to the establishment of dental colleges and the acceptance of dentistry as an honored and enlightened profession, second to none of the great branches of the healing art. All this is most commendable, and our pride of accomplishment may be pardoned by a charitable laity; but when we look about us and see how many fellow-practitioners we have of whom we are not proud; of whom we speak only in terms of derision or reproach, or, better yet, speak not at all; when we see the columns of the daily papers filled largely, as they are, with nauseous descriptions of public and private immorality, and the vicious advertisements of medical quacks, and find there prominently displayed in fitting company emblazoned announcements of the "dental parlor" with its "painless dentistry;" when we see our honored and much-abused pro-

NOTE.—The editors and publisher disclaim responsibility for the views or claims of authors of articles published in this department.;

fession prostituted to the level of one of the attractions in a modern department store, we cannot blame those who look upon dentistry as a trade, and view with more or less suspicion the followers of our calling.

We may indeed be proud of what our profession has done, in spite of all the obstacles with which it has had to contend, but we cannot but realize that something is fundamentally wrong with our system of dental education and practice of conferring degrees on men whose sole ambition seems to be to make what money they can out of their profession, regardless of how they drag in the slime of quackery what they have received and should regard and cherish as a sacred trust. But few, if any, men of liberal education are to be found among the disreputable practitioners of dentistry. Success in professional life comes to an ignorant man only when he preys on the ignorance and credulity of others. Deprive him of the support of the unthinking and the ignorant and his degree and diploma become but the worthless embellishments of a misdirected ambition.

There is no reason under heaven why an ignorant man or woman should be admitted to or graduated from a dental college, excepting that the college wants the fee and has so dwarfed its conscience that the glitter of the matriculate's gold is brighter and more desirable than the honor and welfare of the profession it is supposed to uphold. Yet hundreds of utterly unfit students are graduated from our colleges every year; "dental parlors" increase and flourish, and everywhere reputable dentists are asking for a remedy.

Gentlemen, if only those students who have graduated honorably from a high school or similar institution of learning were allowed to matriculate; if all those who come before our State boards of dental examiners for licenses had to possess equal qualifications and to serve a three-years apprenticeship with a reputable practitioner, the members of our "dental-parlor" brethren would diminish as rapidly as a kind and beneficent death would remove them from the scenes of their activity, or as would grow

the respect and esteem in which our profession is held by all those whose opinion is worth having.

The success of quackery is its greatest encouragement, and while a non-discriminating public, reasoning only on a basis of cost, when considering a dental operation, will lend its patronage to practitioners of ill-repute, so long will there be encouragement for others to join the ranks of those already without the pale of honorable association in their profession.

There never has been a time in the whole history of dentistry when more earnest work was being done, or more effort in every direction being made to advance the truly scientific branches of our art than at present. At no other time has so much been done to establish the correct relationship between the cause and effect and prevention of dental disease; never has dentistry been more deserving of the title of a learned and liberal profession than it is to-day; nor has there ever been a time when the quackery and the ignorance of many of our practitioners—graduates of dental colleges, if you please—has been so much of a reproach and disgrace. There are today about thirty thousand dentists practicing in the United States, and how many of them, let me ask you, are known anywhere outside of the little circle which bounds their daily lives. The names of a few are common to all of us, but the great mass of practitioners are wholly unknown to the worlds of dental science and dental literature.

Almost one-seventh of the whole number of dentists belong to dental societies. Only one-seventh of all our fellow-dentists are large-minded or liberal enough, or feel themselves sufficiently educated, to belong to their local and State organizations. And this state of affairs, lamentable indeed, bespeaks but two things: the lack of broad and liberal education, and the enthusiasm and culture such an education gives. There are several dentists in San Francisco, who have told me they would not join this society, because they "could not write a paper," and "would not know how to do anything" if they did join. They are to

be pitied rather than censured; they are good fellows and good dentists, perhaps, but they are living examples of the lack of education in the dental profession.

In the last August number of *Items of Interest* is printed an article by Dr. G. Carlton Brown, of Elizabeth, New Jersey, in which he gives a list of the questions submitted by the New Jersey State Board of Examiners to graduates of four different colleges, together with the answers made. That article is earnestly commended to your careful consideration; and there is no doubt but you will agree, when you have read it, that there is urgent need for the higher preliminary education of dental matriculates, and also a higher and more honest final examination than is given in many of our colleges.

This question is serious and of vital importance to the future of our profession. If we are to keep pace with the scientific advancement of the day and keep dentistry in the front rank of the march of the liberal professions, we must educate men to a degree that will fit them for this work.

We cannot equalize the natural endowments of all men, but we can, if we will, enforce upon them, from a theoretical standpoint at least, an equal start in the race for professional supremacy. I believe there will come a time, and may I live to see it, when the degree of Doctor of Dental Surgery must be preceded by that of Doctor of Medicine, and both of these still preceded by the degree of Bachelor of Arts.

THE DENTIST AS SEEN BY HIS PATIENTS.

BY DR. R. L. LINCOLN, LA GRANDE, OR.

[Read before the Oregon State Dental Association, October 14, 1897.]

THIS world of ours contains a great deal of trouble, but a convention of dentists represents more misery to the square inch than any other assemblage of a like number of men, and the memory of past experiences with them bring back recollections of days that lasted only too long.

Of all pain that flesh is heir to, what can equal that of toothache? From infancy to old age it is one constant

struggle with our teeth, first to grow them, then to keep them, and lastly to be rid of them entirely and to replace them with false ones.

Just why the Creator did not make the jawbone and teeth all one, and without pulps has always been a mystery. But since this law has been made, the dentist had to be evolved, and it seems as if he had come to stay.

It would be well if when a dental student received his diploma, he should be required to undergo at least one trial of inhaling ether; the attendant pleasure of having an abscessed tooth extracted; his most sensitive tooth drilled out and filled; with all the minor punches and scraping thrown in. Yet how many dentists do you think would be in the country today? Not enough to make a corporal's guard.

Did anybody ever hear of a dentist having a tooth pulled? Never. Did anybody ever know of a dentist wearing false teeth? No one ever heard of a case. Did anyone ever know of a dentist having the nerve of a tooth killed? No, with a big N.

Dental students talk glibly of "nerves" as most delicate and sensitive things to be tenderly cared for, and to be approached with fear and trembling, but as soon as their diploma is framed they proceed to eradicate from their human anatomy every vestige of sympathy, and invest in a dental chair made of iron, strong on purpose to hold aches and pains. Then they solicit victims. Then they file and scrape and drill, never losing an opportunity to touch the sorest spot, all the while beguiling you with their silvery tongue. After they have made you feel as if your head had been lifted about a foot, they will "chuck" in the filling, take your money, smile blandly upon you and invite you to "please call again."

It is not expected that the dentist will be saint-like, as it is seldom he has saints to deal with. Neither does he cut his wisdom teeth any earlier than his patients; but he should aspire to be the best in his profession; take pride

in doing his work well and not trust to his professional dignity (or the apprentice) to do a good job.

But we ought not to fail to notice the other side of our subject. Every cloud has its silver lining, and the dental operator is no exception.

As we approach his realm it looks like a cloudy darkness, and everything in it wears the forbidding aspect of a chamber of horrors.

But when it is all over, the pain all gone and our teeth made as good as new, we leave with light and happy hearts. It is then that we recognize the substantial benefits bestowed by the dental profession upon our generation in relieving an evil they did not cause, and thus saving us from the fate of being a toothless race to be fed upon pap all our days.

Selections.

THE SUBJECT OF ADVERTISING.

[As the subject of professional advertising is now receiving considerable attention, the GAZETTE has taken the opportunity to present under the above caption the Code of Dental Ethics and several articles that, read in connection therewith, furnish food for much thought.]

Code of Dental Ethics.

[Adopted by the American Dental Association, August, 1886.]

ARTICLE I.—THE DUTIES OF THE PROFESSION TO THEIR PATIENTS.

SECTION 1. The dentist should be ever ready to respond to the wants of his patients, and should fully recognize the obligations involved in the discharge of his duties toward them. As they are, in most cases, unable to correctly estimate the character of his operations, his own sense of right must guarantee faithfulness in their performance. His manner should be firm, yet kind and sympathizing, so as to gain the respect and confidence of his patients; and even the simplest case committed to his care should receive that attention which is due to any operation performed in living, sensitive tissue.

SEC. 2. It is not to be expected that the patient will possess a very extended or very accurate knowledge of professional matters. The dentist should make due allowance for this, patiently explaining many things which may seem quite clear to himself, thus endeavoring to educate the public mind so that it will properly appreciate the beneficent efforts of our profession. He should encourage no false hopes by promising success where, in the nature of the case, there is uncertainty.

SEC. 3. The dentist should be temperate in all things, keeping both mind and body in the best possible health, that his patients may have the benefit of that clearness of judgment and skill which is their right.

ARTICLE II.—MAINTAINING PROFESSIONAL CHARACTER.

SEC. 1. A member of the dental profession is bound to maintain its honor, and to labor earnestly to extend its sphere of usefulness. He should avoid anything in language and conduct calculated to discredit or dishonor his profession, and should ever manifest a due respect for his brethren. The young should show special respect for their seniors; the aged special encouragement for their juniors.

SEC. 2. The person and office arrangements of the dentist should indicate that he is a gentleman; and he should sustain a high and moral character.

SEC. 3. It is unprofessional to resort to public advertisements, such as cards, handbills, posters or signs calling attention to peculiar styles of work, prices for services, special modes of operating, or to claim superiority over neighboring practitioners; to publish reports of cases, or certificates in the public prints; to go from house to house soliciting or performing operations; to circulate or recommend nostrums, or to perform any other similar acts. But nothing in this section should be so construed as to imply that it is unprofessional for dentists to announce in the public prints, or by card, simply their names, occupation, and place of business; or in the same manner to announce their removal, absence from, or return to business; or to issue to their patients appointment cards having a fee bill for professional services thereon.

SEC. 4. When consulted by the patient of another practitioner, the dentist should guard against inquiries or hints disparaging to the family dentist, or calculated to weaken the patient's confidence in him; and if the interests of the patient will not be endangered thereby, the case should be temporarily treated, and referred back to the family dentist.

SEC. 5. When general rules shall have been adopted by members of the profession practicing in the same localities, in relation to fees, it is unprofessional and dishonorable to depart from these rules, except when variation of circumstances requires it. And it is ever to be regarded as unprofessional to warrant operations or work as an inducement to patronage.

ARTICLE III.—RELATIVE DUTIES OF DENTISTS AND PHYSICIANS.

Dental surgery is a specialty in medical science. Physicians and dentists should both bear this in mind. The dentist is professionally limited to diseases of the dental organs and the mouth. With these he should be more familiar than the general practitioner is expected to be; and while he recognizes the superiority of the physician in regard to diseases of the general system, the latter is under equal obligations to respect his higher attainments in his specialty. Where this principle governs, there can be no conflict, or even diversity, of professional interests.

ARTICLE IV.—MUTUAL DUTIES OF THE PROFESSION AND THE PUBLIC.

Dentists are frequent witnesses, and at the same time the best judges, of the imposition perpetrated by quacks, and it is their duty to enlighten

and warn the public in regard to them. For this, and many other benefits conferred by the competent and honorable dentist, the profession is entitled to the confidence and respect of the public, who should always discriminate in favor of the true man of science and integrity, and against the empiric and imposter. The public has no right to tax the time and talents of the profession in examinations, prescriptions, or in anyway, without proper remuneration.

Signs of the Times.

[Abstract of paper read before the Northern Illinois Dental Society, October, 1897.]

TWENTY-FIVE years ago the *Missouri Dental Journal* inserted the following specimen of dental advertising that appeared in the daily papers of that date :

Teeth—teeth—teeth—teeth. Great reduction. Gold and platinum sets, \$30.00 (usual charges \$100 00) ; silver, aluminum and other materials \$15.00 (usual charges, \$50.00) ; gold fillings, \$2.00 (usual charges, \$5.00) ; silver, amalgam and cement fillings, \$1.00 (usual charges \$3.00). Dr. B. offers to insert sets of teeth at the above prices, with or without the extraction of roots. Warrants the purity of all materials, as also the fitting of plates, stability and duration of fillings, as if paid at the highest prices. Extractions and other operations performed by means of anesthetic agents. Toothache cured instantaneously. Consultation gratis.

A writer in the magazine says that at nearly every meeting of each of the dental societies the subject of raising the status of the dental profession has been discussed by the man whose name appears in this advertisement.

For many years before the appearance of this advertisement the dental journals had endeavored to impress upon the members of our profession, that only by a proper appreciation of the dignity of their calling could they inspire in others the respect due to it, and were earnestly pleading with students to enter some one of the dental colleges to fit themselves for their future profession, believing that such an education was the cure for all the evils that do so easily beset the dental profession.

Twenty-five years have passed, and with fifty-two dental colleges conferring degrees, yet today the most prominent sign in the dental world is the dollar sign, and a commercial, instead of a professional, spirit prevails. Who is to blame for this—the college or the individual?

Let us take the case of two young men graduating from college. They open offices in the same town. After some

months of patient waiting, during which the doorknob has been oiled many times to prevent it from rusting, the fear that too much time is being lost induces one to advertise in flaming type that he is the cheapest dentist in town, that his operations are painless, his bridges the results of mechanical perfection, and sets of teeth are a mere bagatelle to this modern Herrmann of dentistry.

This is an age and a country of cheapness, and the people are ever eager to grasp at shadows. This dentist—writing D.D.S. after his name, mind you—soon finds his “dental parlors” full of patients, with all sorts of teeth to be filled, crowned, bridged, extracted or treated in any way that best suits the judgment of this experienced young practitioner. At this juncture diplomacy must be called to his aid. It is well understood in commercial circles that the best salesman is not the one who can sell a man what he wants, but he who can talk him into buying what he does not want. So, too, the patient with a shawl over her head and his advertisement clutched in her toilworn hand must be firmly but adroitly led to believe that what was advertised as good at a certain price, is not good enough for her. And one whose appearance indicates that while he may be capable of buying a picture painted at a sitting, yet he has learned to keep his money in a bank instead of in a stocking, is persuaded to have an aching central crowned with gold, and as business is rushing the dentist does not take the time to destroy the pulp in the tooth; and this is the breach in the wall that in time is to widen and let in the flood that will overwhelm him. These little slights that will continue to creep into his work will not stand the test of time. Nothing but truth can endure.

Meanwhile the rival across the way with too jealous a regard for the honor of his profession to advertise, is watching—with some little bitterness, if he is hungry or has a family—the other’s success. And when reports reach him he is almost persuaded to go and do likewise. But something within prevents him, and the long hours of waiting he devotes to study and experiments, so that when the

failures of his neighbors are deflected to his office, he is able to give them the proper treatment.

The history of the world's progress is the history of men of genius, whose work has been made the subject of sneers of friends and enemies alike. Who have lived and worked in solitude, because they knew that truth was on their side and would win. And those lonely hours were the hours when great pictures were painted, sonatas composed, poems written, and the greatest triumphs of science achieved. Meanwhile the individual has been developed, and is ready for all future work, with a foundation established upon an unassailable rock. His work, if he is a capable man, is the best advertisement any dentist can have, making and retaining friends for him as nothing else can do.

And now, has the college that takes a man's fee, professing to fit him for his life's work, honestly done so when it graduates him? Has it taught him anything about how to use the knowledge acquired under its care, or the ethics of his profession? Should not lectures be given to instruct students in the theory of building up a business on legitimate lines, so that the dignity of the profession may not suffer at the hands of their students, if no higher aim is accomplished?

Has the education, advocated twenty-five years ago, resulted in advantage to the profession? We should certainly say that it has, but colleges cannot refine the grossness of every individual, any more than a common boulder can be polished like Parian marble.

The standard of the colleges is not yet high enough. Some time in the millennial future a college may arise that will have the courage not to admit students on any other conditions than that they live up to a high code of ethics established by their alma mater.—[F. T. Bell, D.D.S., in *The Dental Review*, January, 1898.

Ethics.—Professional.

[Read before the Toledo Dental Society, November 12, 1897.]

UNDOUBTEDLY all have given more or less attention to the subject of advertising our business, and have come to some

conclusion as to what is best and right, as to the manner in which we inform the public of our place of business, and of our special claims to prominence and to our superiority over our fellow-practitioners. That we all want business, and desire that the public shall recognize our ability to serve them skillfully, and that we all want compensation for our time, service and knowledge, I am presuming, is tacitly admitted and acknowledged by all.

The profession has presumed to establish a code of ethics that seems to me to be somewhat loose and easy of interpretation to a few, and to others rigid and uncompromising, and having had some experience in advertising, both by printer's ink and otherwise, I have dared to offer you a few thoughts on the subject. I suppose that a strict interpretation of the code would confine our business announcement to a plain, terse statement as to our name, business, location and office hours, and that the sign above the door should be modest and neat; and that all or any demonstrations, either by black or white, gilt or gold, that savor or smack of individual superiority, would be reprehensible. That this is the intention of the code, its animus or spirit, I think we all admit.

In business circles the use of printer's ink, showy and attractive windows, the handbills and dodgers, electrical display, signs, etc., are all admitted as being perfectly clean and regular in attracting business, and no difference how unworthy the promoter or how inferior the goods, yet, if he succeeds, he is hailed as sharp, shrewd and progressive.

In our own profession, no difference how skillful, careful and conscientious one may be, no matter, if as a dentist, he may be able to do better work, render superior services, and at a less fee than his competitors, yet he must perforce keep out of the papers, cut down his sign and wait. The victim may know that his competitor is a poor workman, that he is ignorant, vulgar and conscienceless, yet he does not enlighten the public as to his own superior qualities at the risk of losing professional caste. To go even further into the matter, a claimant for business must not do these

unprofessional things even at the expense of ultimate failure.

Now what makes a standard of right for selling the commodities of life, the transferring of property, the supplying of limbs and eyes, the investing of money, the burying of the dead, and a separate standard for healing the wounded, caring for the sick and the making of artificial teeth?

In tracing back to the genesis of the code, we do not find that advertising is recognized as being in the abstract inherently wrong, but that the hitch comes in the manner in which we may or might make our business announcement. This premise having been admitted, I now come to the meat of the subject, which includes some of the different methods of giving notice of our individual claims to patronage. It has been my fortune to come in close contact with some of the most persistent advocates of a strict interpretation of the code, and I have usually found them with a business to protect, and, prompted by this thought, I have been led to notice how these and other dentists "give notice" and still keep within the pale of the law, or, to dispense with the metaphor, keep under cover of the code.

Now let us remember and keep in mind that the thing we are trying to do, in maintaining the code, is to repress and prevent the making of special claims to superiority over our fellow-practitioners, and that it is the manner in which we do it, that "fires the patriotic heart," and I cite some of the common advertising tricks not covered by the code.

Probably one of the commonest, most contemptible means employed to hoist and bolster one's self, is the speaking of a competitor in a deprecatory manner, a suggestive shrug of the shoulder, the elevating of the eyebrows, and a covert sneer at his work or mention of his name.

One of the silly and amusing, though none the less effective methods of dodging the code, is the "professor"

racket. It has been my luck to meet several of these gentlemen who have risen to the high plane of demonstrator in a dental school, and who have borne out into the world the proud title of "Professor." Even the real professors in some of our schools have profited by their places and have ever after hated most heartily the newspaper "ad."

The horror of a loud sign of a gentleman I have in mind, who advertised through his being the dean of a dental school, was only equaled by the pains he took to let the world know that he was a dean.

In the society columns of the Sunday paper you will occasionally see a notice reading something like this: "Dr. So-and-so, whose dental parlors are a dream of luxury, whose equipments are second to none, whose clientele is made up of the first families in the city, has gone to take a much-needed rest," etc. And then again we have the fraternity man who plays his lodge for all it's worth. A close second to him is the *bright* young dentist who joins the leading church, and who attends all the means of grace with a pocketful of his cards.

Recently, a new one to me, was the man who was invited to a social affair, and to each person to whom he was introduced he volunteered the information that he was a graduate of the only school in America recognized in Europe. Still another dodge is the dentist who has an "Opening," and I read you a literal write-up: "The new dental parlors of Dr. Justout, on the third floor of Curvature's Hall, are models of comfort and elegance, than which there are no handsomer ones in any respect in this city. These parlors are tastily and beautifully decorated, well-appointed and perfectly equipped. The reception parlor is in every way a distinctive attraction as to decorations. This suite of parlors possesses every advantage of a modern and up-to-date establishment." This is advertising that reeks with braggadocio, smacks with superiority loud and blatant, pretentious and untrue.

How nauseating those words "dental parlor" have become, for we have the chiropodist parlor, the tonsorial par-

lor and the dental parlor tastily decorated, models of comfort and luxury, second to none, etc. These words have been given to us in the "Sunday Jolly," until the words have become as much of a nightmare to us as Twain's "Punch, brothers, punch; punch with care; punch in the presence of the passengair."

Recently a patient suggested to me that it was strange that in the State and District societies Dr. Pumpwind was the only recognized dentist from his town, that he, the doctor, informed him that his brother practitioners were not in good form professionally. This dentist would very well be described in the words of Carlyle: "Wi' his mouth full of wind, and his belly full of dust."

Now the intention of all these gentlemen is to advertise and still avoid violating the letter, not the spirit of the code, and this purpose is none the less plain because of their assuming to be correct professionally. That there is a moral and legal right to advertise one's business cannot be gainsaid, but that the violation of the spirit of the code by these various subterfuges and shades of deceit can ever be called right, manly or just, I most emphatically deny. We have a slang phrase which has almost become proper by common use, that applies to so many of the profession, namely, the "knocker," a quiet, well-directed little tap that is effectual in hurting the competitor and boosting the knocker.

As for myself, I rather prefer the independent free lance who uses the poster, the dodger, flash-lights and the newspaper columns, and all of the open methods of advertising, to the coward, hypocrite and sneak. The one is a fair, outspoken hustler for business, while the other is a skulker and a coward. Brought to its final issue, looked at in a reasonable and fair way, laying aside the cloak of the profession, and meeting your competitor as other callings meet theirs, we must admit that much of the non-advertising spirit is humbug, snobbery and, worst of all, cowardice and selfishness.

Advertising must be either right or wrong, and I have yet to hear any intelligent reason offered why the devil may trumpet his claims to goodness, and the angels be condemned to silence. There are some souls who have climbed to the astral plane who maintain that all advertising is wrong, but the world does not accept that view of the matter, and as long as the conditions of life continue as they are, as long as the struggle for existence goes on, just so long will we have a race, a people and a business world that will be determined and shaped by the law of the survival of the fittest.

Utility is the ultimate appeal on all questions of ethics. The value of material things is determined by their usefulness—a law, a code, a constitution, are men-made things; and when they are insufficient “to make the punishment fit the crime,” when they do not meet the exigencies of the case their sacredness falls from them, they are extraneous and, like old clothes that are worn and soiled, they are to be cast aside. The wheels of progress are moving forward in even and definite lines, and the ultimate is the all of life, and our profession owes to itself and posterity the fostering of the spirit of fairness, breadth of thought, liberality of sentiment and freedom of action. If all of the members of the profession were imbued with the spirit of fairness, if we were all unselfish and just, if we could even coerce our fellows into these conditions, there might be some hope for the code of ethics; but as long as our colleges and the profession admit the class of men they do, to the ranks of the profession, as long as the *smart* and *sharp* people are allowed to take precedence over strength, character, worth and quality in other men, as long as the hypocrite, the shoddy and snobbish pretender can find a field to operate in, just so long will the delectable mountains of a code-regulated profession be always a dream of the future, a lost golden thread and the ever-eluding mirage of professional fairness.—[H. E. Harlan, D.D.S., in Dental Register, January, 1898.]

Dental Frauds.

ALLEGED "parlors" are fleecing many people these times. If you are going to build a railroad you get a civil engineer to survey the line and fix the grades. If you are going to build a ship you employ a shipbuilder. If you are going to build a house you get bricklayers, carpenters and other men who have learned their various trades. If your teeth bother you and need repairs you go to a dentist, that is to say you go to a dentist if you know what is best for your own interests. If you are heedless and careless and ignorant you ignore regular and respectable dentists and go to some dental concern and take your chances on torture, blood-poisoning and blackmail. In the last year or two the greatest frauds in the big cities have been committed by alleged dentists, men with flaring signs and so-called parlors. These people announce that they work cheaply and swiftly and satisfactorily.

The other day a lady, who is free to admit that she should have known better, went into one of these alleged "parlors" and asked to have certain work done. The alleged dentist looked into her mouth, examined her teeth and agreed to perform the work for a specified sum. The work was done, or half done, as she afterward learned, and then the lady took up her wrap, gave the name of her husband, a man of good position and very fair means, and started to leave.

"Hold on here," said the manager of the concern. "You will have to pay that bill before you go."

"Well," said the lady, "I haven't the money in my pocket, but I will give you my husband's card, or if you will give me a receipt for it, this watch for security, or I will give you one of my rings."

"Oh, that don't go here," was the coarse reply. "You'll not leave this place until you pay the money."

The lady got a messenger, sent him to her husband's office, secured the money, about \$18, and paid the bill. The next day her teeth troubled her and she went to a regular

and respectable dentist and had the work done over in a proper way. In speaking of her experience she said:

"I never was so frightened in all my life, but I would not sell my experience for anything. It has taught me to beware of these flash dental parlors, and I want to say right now, God help the woman who gets into their clutches."

The attention of the authorities has been called to these institutions, and a raid is likely in the near future.

The development of electricity has furnished some of these fellows with a cheap way of advertising themselves as scientific dentists, and as a result we have all sorts of "electro"—something parlors. As a matter of fact, of course, a good many of the leading, regular respectable dentists use electricity as a motive power, but it bears no more relation to the filling of teeth than if they ran their machinery with a delicately adjusted donkey engine. It seems too bad that as soon as a science, like dentistry, for instance, has become a boon to the public a lot of cheap and palpable frauds should be made possible. The dental fraud is in many respects the most torturing and damaging because it is in the power of an unskilled man to permanently injure and even kill a patient. The practice of the regular dentists now includes the renewal and alteration of work unskillfully done in alleged dental parlors, and the victims, in many instances women, find that they have not only been made to suffer unnecessary pain and put to useless expense, but have sustained irreparable injury.

As soon as one location has become too hot for a dental parlor, for reasons best known to said parlor, the proprietors remove to another section, and, as their experience in these sections is always more or less hot, they are always on the move.—[San Francisco Daily Report, February 3, 1898.

A GREAT many men are everlastingly preaching cleanliness to patients, and instructing them to brush their teeth, when they themselves are not clean.—[I. B. Crissman.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, JANUARY 18, 1898.

CLINIC.—Dr. Russell H. Cool. Extraction of elongated right superior lateral incisor, deepening socket and replanting for treatment of pyorrhea.

DISCUSSION.—DR. COOL'S CLINIC.

Dr. R. H. Cool.—The case was one of advanced pyorrhea. The tooth had dropped down, probably one-third the length of the crown. The posterior surface was entirely denuded and covered with a deposit, and a large pocket existed to the apex of the root. I considered the best treatment to extract, deepen the socket and replant. The patient has suffered from pyorrhea in all its different stages. I operated on the inferior incisors in the old club rooms eight months ago for pyorrhea. You saw the condition of those teeth to-day. Prior to that operation patient would have paroxysms of pain—neuralgic pains, etc., but there was no recurrence of pains after the operation. The conditions today were entirely different. The root was irregularly formed. Canal was filled with gutta-percha and tooth ligated in position.

Dr. F. L. Platt.—There is just the question of durability of the tooth after the operation. How long it will remain firm is a question. I have seen similar cases, where the tooth remained firm for twelve to eighteen months and then loosened. The operation is logical, heroic, and I believe the whole procedure was demanded, well executed and will be a success. It certainly benefited the appearance of the patient. The practice of cutting off the incisive edge is not good, and often leads to trouble. I should like to have Dr. Cool express himself as to the durability of the operation. Every precaution was taken to make it a success.

Dr. Cool.—The ligatures are used as a splint to hold the tooth in position. I started with the left lateral incisor, making a double circle around the tooth and a surgeon's

knot, passing the ligature to the centrals, ligating each one, using a retaining ligature, and then ligated the replanted lateral to these three teeth. A second ligature was passed around the neck of the right cuspid and tied around the lateral, so pressure would be upwards and inwards, preventing the tooth from pressing out, if there was any tendency that way, and holding it firm. I used Carlson-Currier silk 0.

Dr. Frank C. Pague.—I believe from personal experience that the work will be a success. Nature will restore the absorption of the process and place the tooth in a condition surpassing any it has been in for years. In tying the ligatures Dr. Cool took the precaution to ligate several teeth, so that it would be impossible to move the central (approximating tooth) and at the same time tying the cuspid, retaining the tooth firmly in its socket. One condition very noticeable to me was the amount of cocaine necessary to thoroughly anesthetize the parts. It occurred to me as an unusual amount, but, as no unpleasant results followed, speaks much in favor of the anesthetic.

Dr. A. F. Merriman Jr.—The operation was a revelation, and I believe it will be a perfect success. The principal point was that, instead of amputating the tooth, the clinician observed the after-treatment in dressing, and the perfect symmetry of the tooth will be retained.

Dr. Clyde Payne.—In regard to deepening the sockets in cases of this kind, you are necessarily burrowing into the maxillary bone, and there is no periosteum there. The union would be identical to an implanted tooth. The root would be held in mechanically by the osteo-plastic deposit there, and I think the root will commence to absorb there.

Dr. Cool.—If these operations are not failures at the start, their life is indefinite. I have cases a number of years old in a perfectly firm condition, pyorrhea broken up and the organ useful. If it will last five years, I see no reason why not five years more, unless there is some systemic trouble. The case today was an ill-shaped root, and really developed into a case of implantation. To call attention again to the ligating, I think it the only way to

retain a planted tooth. I call attention to the knots: I use very fine silk. Have had cases from the East, where the dentists had used ordinary dental floss. Floss swells and acts as an irritant. I advise those first commencing to use silk to use A, then 0, 00 and 000. The tissues had absorbed on the post-proximal surface to the apex.

Dr. Morflew.—How long do you keep on the ligatures?

Dr. Cool.—The ligatures last from several days to weeks. I implanted a tooth for one of Dr. Barber's patients in October, and at the end of December the ligatures were still in place, clean and doing service.

Dr. Morflew.—How long do you generally keep them on?

Dr. Cool.—I keep them tied three weeks or longer. I had a case of two superior centrals. Five weeks later the patient returned; I removed ligatures and found one tooth not firm, ligated again and told patient to return in two weeks.

Dr. Merriman.—Would it not be an advisable plan when extracting to have a sheath of rubber to wrap around the points of the forceps? This is advisable to prevent injury to the tooth.

Dr. Cool.—I was very careful in extracting. There was great danger of fracturing the tooth, and I used great care. A great many teeth that are brought to me to be used for implanting are badly checked by the forceps. I did not hold firm enough to check the tooth.

OAKLAND DENTAL CLUB.

THE February meeting was held on Wednesday evening, the 2d, at the office of Dr. H. D. Boyes. President Corwin was in the chair, and a fair attendance noted.

The minutes of last meeting being read and approved, Dr. W. F. Lewis, who had given notice of proposition to change day of meeting from first Thursday to first Wednesday in the month, presented his motion and it was unanimously carried.

Dr. Lewis also moved that the Club have a permanent location for its future meetings; also that steps be taken

to found a library and museum. In making the motion the Doctor said that the custom of office-to-office meetings had its disadvantages, notwithstanding the social pleasantries that usually accompanied them. As the Club had grown into a permanent organization of considerable number it was only proper that it emulate the example of kindred societies and establish a permanent abode.

The motion, which seemed to meet the approval of all present, was carried, and Drs. Lewis, Meek and Hackett were appointed a committee, with full power to act, in the matter of securing a permanent headquarters.

The Alameda County Medical Society has offered to share its rooms in the Delger block with the Club, at a low rent, where it has a library which would be available to members of the Club, and it is probable that the offer will be accepted. The change will necessitate a slight raising of the due, which has been but nominal heretofore.

Reports of officers for the year was then submitted, the treasurer, Dr. Lewis, reporting cash receipts as \$41.70 disbursements, \$19; balance on hand, \$22.70.

An appropriation of \$5 was made to meet the assessment levied by the General Committee of the Pacific Coast Dental Congress for preliminary expenses.

The reading of paper by H. G. Chappel was deferred until the March meeting, the subject being "Neuralgia."

The Club then proceeded to elect its officers for the ensuing term, and then adjourned to enjoy the appetizing refreshments presented by the host, Dr. Boyes.

The following are officers for the ensuing year:

President.....C. L. Goddard.

Vice-President.....R. W. Meek.

Secretary.....H. G. Chappel.

Treasurer.....W. F. Lewis.

Executive Committee:—C. L. Goddard, H. G. Chappel and W. F. Lewis.

SAN FRANCISCO DENTAL ASSOCIATION.

At the afternoon session of the February meeting Dr. F. L. Platt gave a clinic illustrating the use of Flagg's Contour Alloy, in large restoration amalgam fillings, and the

use of Gilbert's Temporary Stopping as a separating material. The cavities had been prepared and temporarily filled for several days, mastication on the temporary fillings producing the required separation. The amalgam was introduced in a plastic condition and hardened by the wafering process, showing the ease with which very large fillings may be built up, contoured and hardened quickly and easily.

The evening session was called to order by President Platt at 8:40 o'clock, and the minutes of prior meeting read and approved.

Secretary Miller reported procuring a new ledger, in which he had balanced and opened accounts. In the matter of procuring new record-books for the rewriting of the past records of the Association, progress was reported.

Drs. E. H. Bertaud, Walter R. Hughes, David M. Coney, Philip J. Perkins and F. W. Harnden having been favorably reported on by the Membership Committee, were elected members of the Association.

Two new applications were received and referred.

An appropriation of \$5 was made to meet the assessment levied by the General Committee of the Pacific Coast Dental Congress.

The clinic of Dr. Platt was here discussed interestingly and instructively, the clinician freely illustrating by black-board drawings his method of operation.

Dr. H. L. Seager read a paper entitled "Our Young Patients," which dealt with the method of the dentist's deportment toward and treatment of children as patients. The topic, though a much-treated one, always proves interesting because of the presentation of new experiences.

Dr. Post asked if any communication had been received by the secretary anent the matter of dental instruction in the public schools. Secretary Miller replied that he had not. Whereat Dr. Post said that a member of the Board of Education who is a practicing dentist, had promised to take the matter in hand, but subsequently declined because

of a fear that a selfish motive would be attributed to him by the Press. Another member of the board had promised the committee to do something in the matter, and there it rested.

DISCUSSION -

of paper read before the San Francisco Dental Association, November 8, 1897, by Dr. Frank L. Platt, entitled

"THE NECESSITY OF HIGHER PRELIMINARY EDUCATION IN DENTAL MATRICULATES"

(printed at page 65 of this issue).

Dr. Thomas Morffew said that he was in full accord with the sentiments expressed by the essayist; his personal experience as a member of the Board of Dental Examiners had permitted him to observe the evils of indifferent preliminary education. However, he believed that the colleges were entering a new era of professional advancement; but neither the colleges nor the Board of Dental Examiners could control the conduct of a graduate or a passed applicant. The Board of Dental Examiners is controlled by law. The law permits any person to appear before the board for examination. If the questions are answered satisfactorily the candidate must be passed, although he may not be deemed professionally worthy. Also, if a student can pass the preliminary examination of a college it has been the habit to accept them. Had seen students receive 95 per cent. on questions, but there their ability ended. Those entering the profession who were the most difficult to control were the shrewd commercial men. The American principle of equality of opportunity was a barrier difficult to overcome in professional discipline.

Dr. C. E. Post believed that a candidate for the profession should be compelled to study classically for three years; also believed that State examining boards should have the power to prescribe the amount of literary preparation essential, and also stipulate a term of dental apprenticeship. He was free to admit that he was not any too well prepared when he graduated from college, and had

since wondered how some of his patients endured his first professional work.

Dr. C. L. Goddard said that the subject of preliminary education had been a subject dear to him for many years. Proper preparation is the ground-work for a successful career. When he entered college he was surprised that no preliminary course was required. The trial course of the Association of Dental Faculties had been made more exacting each year until a high-school course was demanded, and which he considered was a proper step. The recent retrogression to a grammar-school course was a matter of astonishment to him. Harvard's dental department requires an examination in four high-school studies, the Universities of Minnesota and Michigan about the same. The University of California has adopted a forward pace, and is setting a higher standard all the time, the faculty believing that the entrance requirements must be high to advance the profession in ability and dignity.

Dr. L. Van Orden considered that the time was near at hand when the public will appreciate and demand that the dental practitioner shall be possessed of a college education. The work of the dental association is the advancing factor of the profession.

Dr. F. L. Platt closed by saying that the more advanced in literature the student is, the better for him as a practitioner. Maybe every one need not be a high-school graduate, but a high-school standard should be established for the matriculate. A man who has only the commercial instinct is not of advantage to his profession.

SACRAMENTO COUNTY DENTAL SOCIETY.

AT the February meeting of the Society held at the office of Dr. E. L. Southworth, the following were elected to serve for the ensuing year as the board of officers:

President.....	W. C. Reith.
Vice-President.....	W. A. Root.
Secretary-Treasurer.....	F. H. Kestler.

MEETING OF GENERAL COMMITTEE OF PACIFIC COAST DENTAL CONGRESS.

THE Congress General Committee met at the call of Chairman W. F. Lewis at the room of the San Francisco Dental Association, on Wednesday evening, February 23d.

Secretary Meek reported having received twenty-eight returns of the thirty-five postals sent out to members of the Committee in regard to holding the meeting at Portland, Or., instead of Salt Lake City.

The answers received being unanimously in favor of the first-named city, it was determined by a vote that the Congress be held at Portland.

On motion of Dr. Goddard, who suggested that the question of affiliation of the Congress with the National Dental Association, either as a division or branch, would be considered, it was the sense of the Committee that the Congress meet two weeks in advance of the National Association (which meets at Omaha, August 30). The exact date will be determined at the next meeting of the committee.

A communication was received from Dr. Hector Griswold, in which he tendered his resignation as Vice-President of the Congress, saying that as it had been determined that the jurisdiction of the Congress be limited to the States of California, Oregon and Washington, he felt it incumbent to resign his official position.

On motion, the resignation of Dr. Griswold was accepted, and Dr. George H. Chance, of Portland, Or., was unanimously chosen as Vice-President of the Congress.

On motion, the Committee on By-laws was instructed to insert a section empowering the Publication Committee to approve all reports of committee meetings prior to publication.

Dr. W. A. Knowles, of the Committee on By-laws, submitted a draft of the laws prepared by the committee, which was taken up and considered section by section. With the addition of several amendments of minor character the report was accepted and adopted as a whole.

The Committee on Ethics reported that a recent report

of the violation of the Code by a member of the Congress had been investigated by it, and sufficient evidence established on which to base a charge for a trial.

Adjourned to call of the Chair.

General Medical Miscellany.

THE DANGER POINT IN ANESTHESIA.—As anesthesia progresses, the corneal reflex is abolished and the pupil contracts to a point. The moment the pupil begins to dilate again slowly and gradually, more chloroform will reduce it again to a point. But if it suddenly dilates rapidly this is a signal of impending immediate collapse, and every effort should be made to facilitate respiration. Gradual dilation of the pupil from the punctiform state is the natural arousing from the anesthesia, but brusque rapid dilation to its maximum is the danger signal.—[Jour. de Med. et de Chir.

TREATMENT OF INSTRUMENT WOUNDS.—If during an operation you should accidentally wound yourself by the prick of a needle or retractor, or the scratch of a knife, you should at once encourage bleeding and then touch the spot with strong acetic acid. It burns rather smartly for a few moments, but the resulting scab will be soft and pliable and not easily torn off. Never cover such a wound with collodion before disinfecting it thoroughly, and do not neglect your precautions in any case, no matter how far beyond reproach may be the moral character of your patient.—[Pacific Med. Record.

WORRY.—Modern science has brought to light nothing more curiously interesting than the fact that worry will kill, and the way in which it kills is stated to be that worry injures beyond repair certain cells of the brain. The brain being the nutritive center of the body, the other organs become gradually injured, and when some disease of these organs or a combination of them arises death finally ensues. Occasional worrying of the system the brain can

cope with, but the iteration and reiteration of an idea of a disquieting sort the cells of the brain are not proof against.
—[Pharmaceutical Products.

PERSPIRATION POISONOUS.—The toxic properties of perspiration have been made the subject of a communication to the Paris Academy of Sciences by Professor Arloing. The moisture extracted from the shirt of a market gardener, and from the glove of a lady, heated by dancing, produced alike severe symptoms of poisoning when injected into a rabbit. He also discovered that the perspiration caused by active exercise was much more toxic than that eliminated by the Turkish bath. M. Berthelot, in course of the discussion which ensued upon the paper, stated that the ancients employed the sweat of horses for poisoning their arrows.—[Amer. Druggist.

REMOVAL OF FOREIGN BODIES FROM THE EAR.—Hummel makes the following deductions respecting the relation sustained by the external auditory canal to foreign bodies in it, and gives some rules for the removal of such obstructions from the ear: 1. The relation of the normal ear-canal to inanimate foreign bodies is entirely without reaction—i. e., the foreign body in the ear does not, *per se*, endanger the integrity of the ear. 2. Every hasty endeavor, therefore, is not only unnecessary, but can become very injurious. 3. In all cases not previously interfered with (with few exceptions) the foreign substance can be removed from the ear by means of syringing.

TRIUMPH FOR A HYPNOTIST.—Dr. Charles Lyman, of Rockford, Ill., a hypnotist of local repute, was invited to give a number of tests before the Northern Illinois Dental Society, which was in session in that city recently. After a number of experiments with subjects, Dr. F. H. Edwards, a well-known physician, stated that he doubted whether the subject was hypnotized. This brought out a challenge from Dr. Lyman to put Dr. Edwards in the same condition, which was accepted. After a struggle of nearly two hours

against the subject's will the hypnotist succeeded in mastering the physician and had him following his suggestions as he pleased. The test created a great impression and was the talk of the visiting dentists.—[Chicago Evening Post.

A NEW OPERATIVE PROCEDURE IN GLAUCOMA.—Jonnesco has recently applied the method of bilateral excision of the cervical sympathetic to the treatment of glaucoma. His first case was that of a man, aged 50, who had suffered from glaucoma for six years and had been blind for two. Directly after bilateral extirpation of the superior cervical ganglion of the sympathetic, the ocular tension, which had been considerably plus fell below normal. Vision, formerly absent, improved so that the day after the operation the patient could count fingers at a distance of at least two meters (80 inches), and could guide himself while walking. Improvement was maintained up till the date of publication (nineteen days). In two cases since this the results have been very satisfactory.—[Sem. Med. Oct. 26, 1897.

UNUSUAL COUGHS OF CHILDREN.—There are many varieties of coughs which do not proceed from pulmonary complications. Dr. Emil Mayer has recently published a pamphlet dealing with this not generally recognized fact. Some of these coughs which Thompson designates as useless are common both to adult and child, while one or two are peculiar to the age of childhood. These coughs, which are reflex in origin, are often the cause of much thought to the physician, and are by no means easy to diagnose correctly. The hacking night coughs of children fall under this category. According to Dr. MacCoy, of Philadelphia, these coughs are mostly due to naso-pharyngeal obstruction, and the reason that they are only troublesome at night is because when the child is in an erect position during the day gravity lends its force to facilitating the escape of the secretions from the nasal passages, but at night when the child is lying down this secretion cannot escape by these means, and the cough is brought on by mechanical irrita-

tion. Again, there is the paroxysmal hacking cough of children described by Dr. Francis Warner of London. This cough occurs in children who, although emancipated and unable to eat, have a normal temperature and the physical signs of healthy lungs. Dr. Warner attributes this condition not to peripheral irritation, intestinal worms, affections of tonsils or pharynx, but to unbalanced central nerve action, and as his conclusions were based on the examination of 22,000 children in schools, he is in a position qualified to speak with authority. Lastly, there is a hysterical cough which is common alike to adults and children.—[Pediatrics—Editorial.

OPTIC NEURITIS FROM ANEMIA.—Mrs. R. was referred to me in November, 1896. She was 30 years of age, large stature and very pale. Her symptoms were dizziness, noises in the ears, failing health with marked constipation. When I saw her she complained of severe pain over the top and sides of her head and over the eyes. Light caused severe irritation and at times great pain.

Examination:—Pupils slightly dilated, otherwise normal. The fundus O D showed papillitis with not much exudation, but great swelling, burying in part the congested veins and arteries, and obscuring the edges of the disc. There was moderate peripheric retraction of the field of vision, and the central vision was considerably lowered, vision being 17-40. The left fundus showed slight swelling, enough to obscure most of the edge of the disc and some of the vessels. Vision in this eye was 17-20. Smoked glasses were given her, and Dr. Thompson ordered her iron and arsenic in large doses and sent her on a vacation to the country.

December 4—The vision was just the same, and also the swelling. April 15, 1897—A great change was observed. The swelling of both discs was entirely gone, and her vision in both eyes was 17-20. That she might be able to read a little better I gave her O. D. + 1. sph. O. S. + 0.75 sph. The fundi appeared perfectly normal. No blood-count was

made. The patient is now robust and well, with no signs of her previous distressing symptoms, either general or ocular.—[Dr. A. J. Shaw in Am. Med.-Surg. Bulletin, January 25.

ACUTE SEPTICEMIA OF DENTAL ORIGIN.—The particulars of a case of acute septicemia of dental origin are recorded in the transactions of the Manchester Odontological Society, of recent date. The patient, a girl aged 14, was first seen on Saturday, April 10, and was suffering much pain. Examination of the mouth showed that three teeth, namely, the left first maxillary molar (the region of which was much swollen) and the first right and left mandibular molars, necessitated extraction. The teeth were removed without difficulty, and the patient made an apparently quick recovery. Soon after returning home she was seized with severe headache, the symptoms becoming aggravated as the day wore on. The swelling, too, considerably increased, the left eye becoming ultimately closed, and the right side of the face also affected. The patient became completely comatosed. On the Sunday about 10 P.M. streptococcus antitoxin was injected, but failed to relieve the condition, death taking place on the Monday morning following about 7 o'clock!

ALKALIN ANTISEPTIC TABLETS.—Each tablet is composed of the following:

Acid boracic, grs. 22.5; sodii bicarb., grs. 7.5; sodii biborat., grs. 7.5; camphor, grs. 1½; menthol, grs. 1½; thymol, gr. .5 combined with three minims of the following combinations of oils: Oil pinus pinoliae, 2 parts; oil eucalyptus, 2 parts; oil scotch pine, 2 parts; oil spruce, 1 part; oil cedar, 1 part; oil cubebs, 1 part; oil wintergreen, .25 part; oil bay leaves, .25 part; chloroform, 2 parts.

These tablets are very useful in the treatment of catarrhal conditions of the nose, throat and ear. They are used by dissolving them in hot water and used as a douche or spray, and are sometimes useful dissolved in the mouth in cases of sore throat and troublesome cough caused by irritation of the larynx. One of these tablets dissolved in one or two ounces of boiling water will make a very agree-

able wash or spray for the nose, throat or ear. I usually have made one gallon of the solution at one time, which is prepared as follows: After the water reaches the boiling point, one tablet is added for each fluid ounce, and allowed to boil for five minutes, after which the solution is placed in a macerating jar and allowed to stand, with occasional shaking from three to four weeks, or until needed for use. It is then filtered or siphoned from the bottom without disturbing the top and is then ready for use. The solution, prepared as described, imparts a very rich, mellow odor; and while it is a little sharp when first sprayed into the nose, this is followed by a delightfully refreshing and soothing effect.

The efficacy of the solution does not seem to be increased by age. A freshly prepared solution differs from that macerated for some time only in the absence of the rich, mellow odor and taste which comes with age. Some mucous membranes are much more sensitive than others, and for these the solution should be diluted with a 4 per-cent. solution of acid boracic. For simple catarrhal inflammation of the nose, throat and ear, its curative influence is very marked; for dissolving and removing impacted cerumen from the ear and for general cleansing purposes of the organs named I have not found anything that has given me the same degree of satisfaction. In fact, my entire experience with this formula (which covers a period of three or more years) has been extremely happy.

The unusual amount of volatile oils of pine held in solution by reason of the salts of soda undoubtedly imparts to the mucous membranes of the nose and throat its acknowledged therapeutic effect, and that it is rapidly absorbed into the system by the mucous membranes, especially the nose, is shown by the effect upon certain organs of secretion.

I have the formula put up in tablets, because it is very convenient to use them, and besides a person may make the solution at home as he needs it. It has been observed that a portion of one of these tablets dissolved in the

mouth and swallowed will relieve the sickness caused by the swinging motion of a moving train; also the sickness and vomiting caused by the disagreeable effects of cocaine applied to the naso-pharynx, larynx and soft palate.—[Jour. Am. Med. Assn.]

FATAL BLEEDING FOLLOWING REMOVAL OF ADENOID VEGETATIONS.—Dr. E. Schmiegelow reports in *Monatssch. f. Ohrenheilk.* the following very rare complication of the operation for the removal of adenoids of the naso-pharynx.

Primary bleeding from the removal of adenoid vegetations fortunately occurs rarely. Seldom are cases reported in literature where serious bleeding after this operation is met with. More commonly the bleeding has ceased before the occurrence of complete collapse.

Death in one case reported by Delevan, after a digital examination of the posterior nares, was without doubt due to the fact that the child was a "bleeder." The case reported by Schmiegelow was that of a boy 12 years old, treated at the polyclinic of Frederick's Hospital, Copenhagen. The patient complained of a disability to breathe through his nose, and had to breathe through his mouth altogether. He was small for his age, always held his mouth open, while his nose appeared compressed laterally. On both sides of his neck, both before and behind the sterno-mastoid, there were swollen lymphatics. The family history of the patient was scrofulous. By digital examination it was ascertained that the vault of the naso-pharynx and the posterior nasal meatuses were filled with adenoid vegetations. The exploring finger was somewhat bloody. The operation was performed with the patient seated, while an assistant steadied the head with one hand and with the other held the hands of the patient. The boy sat quietly during the performance of the operation, without struggling or without apparent fear. A Gottstein's curette was introduced into the naso-pharynx, a mouth-gag being used to hold open the mouth. First, by a stroke of the instrument it was carried into the middle line. The handle was pressed

to the left, so that the blade was carried into the right side of the naso-pharynx, where three or four sweeps were made. Immediately there ensued a very profuse hemorrhage from the mouth and nose, of bright arterial blood, without any preliminary dripping. It was seen at once that unless assistance were quickly rendered, danger of a serious nature was imminent. The patient meanwhile sinking from his seat, was assisted to a table, and a tampon of iodoform gauze introduced anteriorly and posteriorly. His breathing became rapid; he was very pale and cyanotic.

Bleeding was controlled after the tampon was put in place, but in spite of the subcutaneous and intravenous injections respiration was not re-established. An autopsy was performed which resulted as follows: The heart and its adjacent veins were well-filled with blood. (The patient had lain with his head lowered and the extremities had been wrapped with bandages.) All the internal organs were markedly anemic. The right lateral wall of the naso-pharynx was lacerated, and there were clots of blood in the wound. There was found in the internal carotid a long wound, just below the portion which enters the carotid canal of the petrous portion of the bone. Besides this, there were few lesions of the vessels at the side of the wound of the pharyngeal wall. Numerous enlarged glands existed contiguous to the artery. The course of the vessel was microscopically normal.

An explanation of the manner in which the accident occurred was not apparent. It seemed certain that the serious hemorrhage was from a lesion of the internal carotid artery, and that the cause for the pharyngeal bleeding was the wound of the side wall of the pharynx, through which the blood found an outlet. But how the internal carotid was ruptured is not clear. Possibly the great swelling of the glands to the connective tissue of the side of the neck had an influence upon the fatal result. The internal carotid was evidently injured through the pharyngeal wall.

The Gottstein's curette had in all probability pressed upon the lateral wall of the pharynx and brought so much

force to bear upon the internal carotid that this artery was pressed tightly against the cranium, resulting in its rupture.—[Am. Med.-Surg. Bulletin.

NITROUS OXIDE GAS IN MINOR GYNECOLOGICAL OPERATIONS.

A safe anesthetic agent, which will rapidly produce unconsciousness with muscular relaxation and leave behind it no after-effects whatever, is greatly needed at the present time for the minor surgical procedures of gynecological practice.

It is claimed by Dr. H. Bellamy Gardner, London, Eng., that, in the portable apparatus invented by Dr. Frederic Hewitt for the purpose of adding small and regulated percentages of oxygen to the nitrous oxide gas, we have an appliance that will give us all we can desire in this direction.

By this admixture of oxygen, nitrous oxide gas is converted from an irrespirable into a respirable inhalation for the following reasons: Nitrous oxide gas alone has powerful anesthetic properties, and when absorbed into the blood is carried in loose chemical combination with the hemoglobin of the red corpuscles. It displaces the oxygen of hemoglobin, but itself gives up no oxygen to the tissues, and, after completing the systemic circulation, is exhaled again, unchanged, as nitrous oxide gas. This physiological phenomenon produces, therefore, after from fifteen to twenty-five respirations of pure gas, a condition of oxygen-starvation, with the resulting clinical asphyxial symptoms of irregular breathing, cyanosis and jactitation.

At this point anesthesia is complete; not because the patient is somewhat asphyxiated, but because of the potent anesthetic influence of the gas upon the whole nervous system when carried to it by the blood. The asphyxial symptoms, due to oxygen starvation, however, render it necessary to remove the face-piece and allow the patient some breaths of fresh air.

Unfortunately the concurrent admission of quantities of air sufficient to abolish the asphyxial manifestations and

furnish the blood with oxyhemoglobin so greatly weakens the anæsthetic inhalation by admitting a large proportion of inert nitrogen (four parts to one of oxygen) that imperfect anesthesia is the result.

In Dr. Hewitt's apparatus, by the provision of pure oxygen (admitted through small holes from a second India-rubber bag attached to that containing the nitrous oxide), the needful 10 to 15 per cent. of oxygen can be inhaled, while the remaining 85 to 90 per cent. of tidal gas is the pure anæsthetic nitrous oxide.

By the proper management of this mixture a tranquil anesthesia of several minutes' duration can be obtained with the face-piece continually applied, and the four desirable properties of safety, rapid unconsciousness, muscular relaxation, and freedom from after-effects, are secured for the performance of the surgical procedure and the benefit of the patient.

That nitrous oxide gas and oxygen is a perfectly respirable mixture, and a useful one under many conditions, even for the more severe operations if occasion require, the author has abundantly proved at Charing Cross Hospital, where he has maintained anesthesia in the operating theatre during the excision of a varicocele lasting fourteen minutes, the incision and thorough scraping of a tubercular abscess in the neck lasting six minutes; the examination of hip-joints lasting several minutes each, and in numerous other suitable cases.

Dr. Hewitt has maintained an anesthesia lasting twenty-four minutes, while an extensive exploration of the left hip-joint, which involved four incisions, was being performed.

It is well, in order to obtain the best results, that the inhalation should be conducted three or four hours after a meal; but, unless to suit a particularly appointed hour, there need be no abstention from the ordinary meals beforehand.—[Am. Med.-Surg. Bulletin.

DEMONIACAL POSSESSION.—At a meeting of the New York Neurological Society, Prof. Wm. James, of Harvard, read a paper on this subject, in which he said that demoniacal possession was connected with the form of altered personality known as spirit control. Another form is the transient one of certain dream states of epileptic insanity, described under the name of "ambulatory automatism," during which the subject wanders about, remaining in this state sometimes for weeks, after which he has no memory of what has happened during his wanderings. That the public belief in the possession by demons is now obsolete is a strange thing in Christian lands, considering that the Bible is full of this belief, and that every land and every age had exhibited facts on which the belief is founded. The particular form of supernatural origin varied with the traditions and popular beliefs of each country. When the Pagan gods became demons, after the triumph of Christianity in Europe, all possession was looked upon as diabolic. It is now replaced by the thoroughly optimistic belief that changed personality is the spirit of a human being coming to bring messages of comfort from the sunny land. Prof. James said that the unconsciousness is usually ushered in by a more or less pronounced convulsion, the person's character becoming entirely changed in its attitude, voice, manifestations, which after an hour or two passed off, leaving a complete amnesia behind of everything that had occurred, the mental condition differing from that of any form of insane delusion, by the person being entirely well in the intervals between attacks.

In Japan, where there are a number of persons who cultivate the power of passing into trances, there is a curious superstition that the person afflicted is not affected by a demon, but by a fox. In China there is still a widespread belief that possession by gods and spirits can take place, and a number of cases of demoniacal possession have been reported. In speaking of the witchcraft delusion the author said that he thought the witches were not neuropathic, but that their accusers were. The "demon-diseases,"

which started the witchcraft delusion, were very common in those days, and were based on any functional neuro-pathic disease. If there were no obvious physical disorders, and if the symptoms did not yield readily to the usual medical treatment, the case was considered to be one of demon disease.

Prof. James read from a book, written in 1602, by a French magistrate, a detailed description of a girl possessed with five demons, and the manner in which they came out of her mouth and ran about the fire two or three times before disappearing. The descriptions remind one of the classical hysterical attack: the globus hystericus, convulsive seizures, etc., the cases being probably instances of imitative hysteria, patterned after the case existing at that time, and varying in different countries with the difference in the psychological surroundings.

Dr. Augustin Constance reported an interesting case of demoniacal possession in 1863, in Savoy, France, which began as an epidemic of hysteria among certain children, and was propagated by example until at last a very large number of persons were attacked with all the symptoms of demoniacal possession. A year after the breaking out of the epidemic 110 persons were affected. Dr. Constance examined a number of these individuals and found them to be suffering from hysterical attacks, brought on by suggestion. The epidemic was broken up by the patients being sent away to other villages. In these attacks there is a marked analogy to the performances of the numerous spiritualistic mediums of the present time.

"It would be strange, indeed," said Prof. James, "if a phenomenon which had played such a large part in history should have died out without leaving anything in its place. Medical men should learn from this a certain lesson, i. e., that as our views have become optimistic, instead of pessimistic, the whole thing has become harmless. We live in a day when there is much alarmist writing in psychopathy about degeneration, and the alarming significance of all sorts of symptoms and signs, so that there is danger of

drawing the line of health too narrowly."—[Journal of Nervous and Mental Diseases.

STOMACH COUGH is a term often employed by the laity, and like many another popular expression, it contains an element of truth. Dr. Lander Brunton has pointed out that it is just at the place where the respiratory and digestive tracts cross one another that irritation is most likely to give rise to both coughing and vomiting. A case of Brunton is cited: "A gentleman suffered from cough, which gave him a good deal of trouble; the back of his pharynx was congested, and I ordered him a gargle. For some time it was not a bit better, and then, for some reason or other, somebody else gave him several blue pills and the cough disappeared.—[Brit. Med. Journal.

SHALL A WOMAN WITH AN ERUPTIVE FEVER NURSE HER BABY?—This question is answered affirmatively by Roger, who bases his opinion on statistics kept at one of the isolation hospitals in Paris. Of a large number of new-born infants nursed at the breast by mothers who suffered at the time from either scarlet fever or measles, none contracted scarlet fever, and only two measles. This immunity is explained by Roger on the supposition that the infants are protected by ingesting the toxins or attenuated germs in the milk.—[Medical Week.

CORYZA SNUFF.—The following is from the *Jour. des Practiciens*:

Bismuth Subnitrate.....	4 gme. (1 dr.)
Powdered Camphor.....	0.4 gme. (6 grn.)
Powdered Boric Acid.....	0.2 gme. (3 grn.)
Morphine Hydrochlorate.....	0.03 gme. (½ grn.)
Cocaine Hydrochlorate.....	0.015 gme. (¼ grn.)
Powdered Benzoin.....	1 gme. (15 grn.)

LOCAL APPLICATION FOR NEURALGIA.—

Sulph. Atropin.....	gr. v
Aqua.....	cz. iij

Bring almost to boiling point, saturate cloth or lint and apply to part; cover with cloth to hold heat.

Dental Excerpts.

TO POLISH ALUMINUM.—Gray or unsightly aluminum may be restored to its white color by washing with a mixture of 40 grams of borax, dissolved in 1000 grams of water, with a few drops of ammonia added.

TO RETAIN RUBBER-DAM.—Dr. Bergstresser uses sandrac varnish instead of the painful silk ligature. He says this is a most valuable method, and that if the plan has not been universally adopted it ought to be.—[Brit. Jour. Dental Science.

IT IS "CERVICAL."—In describing the anatomy of the tooth, the word "gingival" is frequently used in naming the portion at the gum attachment. This is an error. Gingival pertains to the gum, and should not be used in describing a tooth or a cavity in a tooth.—[Western Dental Journal.

DENTAL "WAX."—Take of French chalk, fourteen parts; gum kauri, eight parts, and stearin, four parts. Melt the stearin on a water bath, then add the finely powdered gum kauri in small quantities. When dissolved sift in slowly the French chalk, and stir constantly till cold. The composition can be colored with carmine if desired.—[Pharmaceutical Journal.

FORMALIN NOT A PRESERVER.—In the use of formalin for preserving a dead pulp, we have found it useless for a long time, i. e., it will preserve it for forty or fifty days. When one-half of the pulp has been removed the remainder will rest quietly for about three months, then it will begin to lose its potency. Formalin is soluble in water, and we explain its non-preservative properties to that fact. We think you will do well to remove the pulp from the roots as formerly and not depend on mummifying it.—[Dental Review.

RESTORATION OF GUM TISSUE.—I have found in trying to restore gum tissue, where it was uniformly wasted away around the necks of teeth, that if we take a tolerably stout

silk thread and wax it well, tie it firmly around the teeth and leave it there, it will cause a degree of irritation that will have the gum tissue come up and go beyond the ligature, so that by watching it carefully, and keeping the mouth clean, we will be able to produce uniformly a pretty good margin of gum, and afterward care for it antiseptically after the ligature is taken off, and we will find in some of those "symmetrical wastings" that the necks will be very well covered. In other cases I have found that by loosening the gum tissue around the surfaces of the root and making transverse cuts in the gums at regular intervals I could force it down.—[A. W. Harlan, Dental Review.

ERUPTION OF RIGHT UPPER CENTRAL INCISOR THROUGH THE LIP LATE IN LIFE.—The patient was a lady, aged 60 years. The retained and misplaced tooth, after being impacted in the jaw for about fifty years without betraying its existence through any symptoms or troubles, when the neighboring teeth, whose roots to a certain extent stood in its way and prevented its eruption had disappeared, it emerged with its cutting edge from the atrophied alveolar process, according to its abnormal horizontal position in the jaw, and passed directly in the transition-fold between the gum and the upper lip. In its further course, in consequence of the continuous pressure, it gradually bored through the mucous membrane of the lip and its muscular apparatus, which impeded its complete eruption, and finally the tooth penetrated the skin, the lip being completely pierced. Tooth was extracted.—[Monat. fur Zahnheilkunde.

TOOTH-STRUCTURE IN LOWER ANIMAL LIFE.—The lowest form of animal life which possesses anything like a dental apparatus, and almost the only one below worms and mollusks, is the sea urchin. The teeth consists of five calcareous bodies, wedge-shaped at the apex, and set in a circle; and instead of moving up and down, or from side to side, as is the usual way, they converge toward the center at the

top, and as the wedge-shaped sides close in against one another the food is crushed between ten grinding surfaces.

A group of minute worms called rotifers, have a curious pair of horny jaws. Instead of the lower jaw moving, this is fixed, and called the "anvil." The upper consists of two pieces called "hammers," which beat upon the anvil.

In the mouth of the leech are three little white semi-circular ridges, each surmounted by about one hundred sharp teeth, when the mouth, or sucker, is applied to the skin, a rotary or sawing motion is given, so that the bite of the leech is really a saw cut.

In univalve mollusks or snails, minute plates with serrated edges, arranged in rows upon the tongue, serve for teeth. The garden slug has 160 rows with 180 teeth in each row.

The teeth of fishes present the greatest variety, ranging in number from zero to hundreds. The sturgeon has none. The hag fish has a single tooth on the roof of the mouth and two serrated plates on the tongue, while the mouth of the pike is crowded with teeth. Some low forms of fish—some rays for example—have short, flat, blunt teeth, suitable for crushing shellfish and grinding seaweed. The most common shape, however, is conical; but teeth of this class vary from those so fine and slender that the myriads of them in the mouth of the perch feel almost as soft as plush, to the large, flattened, serrated ones of the savage shark. In their arrangement and position the contrast is also very marked. In the different species we find them situated not only in the front part of the mouth, but at the back, and on the roof, sides and palate, and in fact on nearly every bone that enters into its formation.

Birds have no teeth, but their place is supplied by a muscular gizzard. This does the grinding of the food, which would be the function of the teeth were they present.—[U. W. Smith in Un. of Mich. Dental Journal.

TREATMENT OF PULPLESS TEETH WITH SODIUM AND POTASSIUM.—As you are probably aware, Dr. Emil Schreyer, of Vienna, was first in recommending sodium and potassium

for the sterilization of root-canals. He knew that this compound, when brought into contact with moisture, would rapidly decompose with generation of intense heat. His prime object was to boil the contents of putrescent pulp-canals by the aid of this compound, thereby arriving at sterilization; and he did not recognize the true chemical reaction which took place until the odor of soap apprised him of it.

Root-canal treatment as practiced today involves a thorough removal of every particle of the putrescent pulp, but in cases where this is impossible it is certainly desirable and of paramount importance to find a remedy or a means to render such particles of pulp-débris perfectly aseptic.

Now let us examine our compound in three directions:

First.—Does it facilitate the removal of the canal contents?

Second.—Does it possess a disinfecting influence upon the canal contents and eventually upon the canal?

Third.—Does it successfully remove pulp-débris in those parts of a canal, which cannot be reached by ordinary means, and if not, does it leave such pulp-débris in a sterilized condition?

I will answer these questions by the following statements and demonstrations:

When we place into a tooth containing a putrescent pulp a small quantity (Dr. Schreyer says as much as will adhere to the barbs of a broach upon withdrawal from the compound) of sodium and potassium a chemical process occurs, converting the contents into soap and watery glycerine solution. These are easily removed by syringing the canal with water or hydrogen peroxide, using a hypodermic syringe for that purpose. The application of the compound and the syringing is repeated several times. If we now try to enter a canal so treated, we will find ready admission in even such canals as were previously quite impassable to the very finest broach. This is readily accounted for by the fact that the walls of the canals are coated with a soapy film, thereby becoming smooth and slippery. Furthermore,

we are cognizant of the fact that this compound, is very hydropic, and we can therefore feel quite certain that its action extends to the apex of even a sinuous canal. Thus we have converted the putrescent contents of the entire canal into a sterilized innoxious mass. But, in my opinion, sodium and potassium will not only cleanse in this manner the entire canal, but it will enter and immunize by its caustic property the dentinal tubuli, at least a certain distance. And this is one of the cardinal points to which I wish to draw your earnest attention. That sodium and potassium does accomplish this I will presently demonstrate ocularly. But before producing this proof I wish to call your attention to another vital point in results achieved by this method. It is well known that the putrescing pulp and surrounding dentinal tubuli are infested with myriads of bacteria, and we also know that the thermal death-point of pathogenic as well as non-pathogenic bacteria is not above 150° C. (315° F.), but that micro-organisms will be effectually destroyed at that temperature. Sodium and potassium when brought into contact with moisture decomposes with generation of *intense heat*; and this heat generated in *immediate contact* with bacteria will, in my opinion, certainly destroy the life of these cells.

As to the second point: Does this compound possess a disinfecting influence upon the canal contents and the canal itself, i. e., the dentinal tubuli? Or, in other words, is it germicide? This question, and number three—whether it successfully removes all pulp-débris in tortuous canals, and, if not, does it render them sterile?—have already been answered in elucidating the effects of sodium and potassium. —[Dr. A. Schramm in Dental Register, January, 1898.

EFFECT OF SUGAR.—It is a common belief that cane sugar is injurious to the teeth, and that its candy is positively destructive to them. No greater mistake could well be made. Cane sugar is not only unfermentable before it is changed by the action of the digestive ferments, but it absolutely prevents fermentation. The housewife preserves her fruits

and her delicacies by its means, and sugar-cured meats are well known to everyone. If candies are pure, and are made from cane sugar, they will be preservative of the teeth, and may be recommended for that purpose, provided always that the teeth are properly cleaned after they have been taken, as they should always be after eating. It is the adulterated candies that do injury to the teeth. The use of too much sugar is bad for the digestive organs, and through them may act deleteriously upon the teeth, but these organs were never directly injured by pure sugar, or sugar candy.—[Dental Practitioner and Advertiser.

TEETH OF CIVILIZED RACES DEGENERATING.—It has long been contended that the teeth of civilized races give evidence of structural and functional retrogression. . . The teeth of the American people especially, it is claimed, seem to be yielding to the dual adversity of functional retrogression, as a result of disuse, and the inherited effects of an acquired inadaptation to use. The intermarriage, common in this country, of a people exhibiting a variation of racial and national types, and the oftentimes resultant caprices of heredity manifested in the offspring in anomalous arrangements of the teeth, disproportionate size of teeth and maxillæ, and the very frequent relative disproportions of the latter, can reasonably be considered a contributing influence; viewing these conditions as tending to impair, or discourage, the active and general use of the teeth.—[Hugh B. Mitchell in Ohio Dental Journal.

TO PREVENT CLOUDING OF MOUTH MIRRORS.—An ingenious device to prevent the clouding of dental mirrors, which is, of course, equally applicable to the mirrors used in nose and throat work, has been made known by an English dentist, Dr. George Wallis. This consists simply in smearing the surface of the mirror with soap, and then polishing it with a dry cloth. If this is done, the troublesome warming of the laryngoscope is entirely unnecessary. This method has long been used by housewives for polish-

ing mirrors, but we do not know of it ever having been employed by laryngologists.

UNINFLAMMABLE CELLULOID.—A process has been patented by M. Asselot for insuring the uninflammability of celluloid. He makes two solutions, one of one part of ordinary celluloid in ten parts of acetone, and another of two parts of powdered chloride of magnesium in six parts of alcohol, then makes a paste of the whole. When carefully mixed and dried, an inflammable celluloid is obtained.—[Chemist and Druggist.]

USEFUL HINTS.

To **FINISH RUBBER PLATES**, use about one-third emery with pumice. Saves labor and time.

ALUMINUM PLATES allowed to stand in a warm solution of caustic soda will take on the frosted appearance so much sought after.

To **KEEP BURNISHERS** in good condition, procure a thick piece of sole-leather, cut a narrow groove the whole length of the strip; sprinkle rouge in the groove and apply your burnishers until perfectly bright.

To **PREVENT NAUSEA** from use of rubber-dam, Dr. Carmichael (in *Welch's Monthly*) says: "Use oil-silk under the rubber-dam." C. C. Jones: "Treatment by a reputable Christian scientist." Dr. Wetherbee: "Substitute cottonoid." Dr. Naumann: "Put perfume on the dam." Dr. Grove: "Wash the dam thoroughly in rose water."

PLASTER CASTS may be made so tough that they will bear the driving of a nail into them without cracking by immersing them in a hot solution of glue for a sufficient time to permit it to permeate the entire mass.—[Scien. American.]

To **PROTECT STEEL FROM RUST**, Prof. Olmstead, of Yale, recommends resin melted with six or eight parts of lard as the best protection for iron or steel instruments, or implements of any kind, against rust. Objects anointed with it will remain free from corrosion for years.

News Miscellany.

THE BRITISH DENTAL LAW.—The Dentists' Act does not interfere with the performance of dental operations, except that a person not registered under it cannot recover any fee for such in a law court. Nor can he assume the title of dentist, dental practitioner, or anything similar.—[Chemist and Druggist.

AN INTERESTING FIGURE has passed away from the French dental profession in the person of Madam Berthaux, of Soisson, the wife of the dentist of that town. This lady was 74 years old, and had been practicing dentistry for forty-five years, and as there were but few women in the profession at the commencement of her career, she may be said to be the *doyenne* of French women dentists.—[Jour. Brit. Dental Assn.

X-RAYS FROM THE GLOW-WORM.—The glow-worm's light is said to have been shown to be due to the emission of rays similar to the Rontgen rays. Three hundred glow-worms were caught near Kiota and placed before photographic plates screened from the light by several thicknesses of black paper, together with plates of brass, copper and aluminum. A piece of cardboard with a hole in it was placed between the metal and the photographic plate, and for two days the arrangement was kept in a dark chamber sheltered from all foreign lights. On developing the plate, however, it was found to be blackened, except the part opposite the hole in the cardboard. The rays of the glow-worm would appear, therefore, to penetrate metal and excite luminosity in cardboard. When there is nothing between the sensitive plate and the glow-worm, the rays are said to behave like ordinary light, but in traversing some metals and cardboard they seem to acquire properties like those of the X-rays, or it may be that the glow-worm emits X as well as ordinary rays. This account savors somewhat of the improbable, and in regard to the latter part of it there may be a third explanation.—[Pharmaceutical Journal.

College Notes.

A COLLEGE JUBILEE BANQUET.

ONE of the pleasantest incidents in the annals of college life in San Francisco took place January 29th, when the students and Faculty of the College of Physicians and Surgeons of San Francisco celebrated the Golden Jubilee of the State by a banquet at the California Hotel. All the essentials for such an occasion were in abundance, the merry badinage and brilliant speeches gave zest to the spread, while the college yells and display of colors made it a typical college celebration.

Preceding the banquet, the students to the number of 200 strong, resplendent in the college colors of red and white, bearing a large banner marked with the device of skull and cross-bones, and led by a military band, marched to the Pavilion, where the Miners' Fair was to be opened. Having performed their duty as loyal Californians in giving their presence to a notable event, they marched to the California Hotel, where they were met in the parlors by the College Faculty.

At 10:30 o'clock proceeding to the banquet hall the tables were found burdened with a menu that was rendered attractive to the eye by the embellishment of the tables with red and white flowers, and welcome to the stomach by its superior quality and flavor.

In the midst of the gustatory and bibitory pleasantries Toastmaster Jackson in a neat speech introduced as the first speaker of the evening the popular dean of the college, Dr. Winslow Anderson, who responded to the toast "Our College." His response included a brief resumé of the history of the medical colleges of the Pacific Coast, in which he also noted the growth of the dental profession, and, as a representative of the medical profession, he extended to it as a sister profession the right hand of fellowship. In closing he referred to the phenomenal progress

made by the College of Physicians and Surgeons during its short existence, and sat down amidst a salvo of applause.

Dr. Charles Boxton, dean of the Dental Department, responding to the toast of "Good Fellowship," followed with remarks of the same trend as Dr. Anderson's, touching on the brotherly feeling now existing between the two professions. He also spoke of college spirit and loyalty.

Dr. J. A. Laine, president of the college, in response to the toast, "American Institutions," spoke of the powerful growth of medicine in America, and of the many branches in which Americans now led the world. The patriotism of all was appealed to, and not only the popularity of Dr. Laine, as a college president, but also love of country found expression in the vociferous cheering which followed his speech.

Drs. Kelly, Hodghead, Macdonald, Hart, Howard, Morfey and Wintermute responded to toasts, which only lack of space forbids mentioning. Dr. Cæsar responded for the Alumni, and Dr. Meyer for the visitors.

Students Keefe, Covert, Sprigge, Lattimer, Goodale, Eason and Lohse also responded to toasts.

At the close of the speeches Dr. Anderson arose and officially announced that the erection of a magnificent college building and hospital would be commenced during '98, which made a fitting climax for the evening, and the banqueters dispersed with cheers for the dean, president and Faculty of the College.

THE AFFILIATED COLLEGES.

THE buildings for the Colleges of Law, Medicine, Dentistry and Pharmacy of the University of California are now in a stage of completion, and there seems no reason why the colleges shall not be ready for occupancy for the school session of 1898-9. Through the courtesy of Dr. Litton, of the College of Dentistry, we present as a frontispiece a cut of the buildings. The one on the left will be occupied by the Departments of Dentistry and Pharmacy.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

THE CODE OF DENTAL ETHICS.

WERE it not for the fact that humanity, in what constitutes the best part of each phase of its activity, is constantly striving to attain an ideal condition of existence a relapse into barbarism would not be a very remote possibility. So, admitting the general truth of this statement, we should welcome with pleasure and support with earnestness anything that has for its fundamental purpose the advancement of any profession, trade or art toward the realization of the ideal which it seeks to reach.

In this issue of the GAZETTE is reprinted, under the caption of "The Subject of Advertising," the Code of Dental Ethics, followed by several articles of pertinent interest in connection therewith. As the code was adopted by the American (now National) Dental Association in 1866, and as there seems to be, judging from its frequent violation, a prevailing ignorance of its form, purpose and principles, its careful perusal and study is asked of our readers, believing that it will be unusually interesting at this time.

That the code has not done all that was expected of it is a fact painfully apparent to even the most casual observer. The dental profession is not today what the American Dental Association in 1866 probably hoped it might become; it falls far short of what it should be, considering all the advantages it has had in the past thirty years, but in our opinion the fault does not lie in the code itself, but in the *personnel* of a class of individuals who have been allowed to enter the profession, regardless of the fact that they were in many respects unqualified to do so, and pos-

sessed, instead of a spirit of professional honor and integrity, simply a mercenary instinct as vicious in its nature as it is harmful to the best interests of the profession.

The code simply lays down the fundamental rules of procedure which should actuate and govern almost instinctively the true professional gentleman, who is upright, honest and clean in both his private and professional life. It is broad, fair and just to both patient and practitioner, and contains no arbitrary rule of conduct which is unjust or irksome to any one who properly values his own or his profession's integrity and honor. It is the one standard by which we may differentiate between him who practices dentistry as a *business* and him who practices and upholds it as a *profession*.

Long association and precedent lead us to look upon the professions as ranking higher in the scale of human achievement than the trades or various branches of commercial transactions that constitute what is known as "the business of the world," and, unless we are ready to relinquish this rank, to surrender what has been gained by generations of constant toilers in single lines of thought and study; unless we wish to rank our profession with the ordinary traffickers of daily life, taking our chances for a livelihood side by side with the good, the bad, and the indifferent component parts of the commercial world, resorting to their methods, fair or foul, as the case may be, to secure patronage; in short, unless we are ready to lose our identity as a profession, ready to be lost in the great sea of varied industries that simply constitute the activity of humanity, succeeding or failing as shrewdness or ability or wit may lose or gain in competition with our fellows, we must support this code of ethics, and strive unceasingly to raise the standard of our profession to the level of the code.

This task may seem to some to possess insurmountable difficulties, but if we stop for a moment and consider the difference between the violators and upholders of the code, we may see plainly where the trouble lies.

An old aphorism says "silk purses cannot be made from sow's ears," and to demonstrate the truth of this saying requires no argument. Let us keep the "sow's ears" out of our profession, and the "silk purses" may safely be trusted to keep it clean and above reproach. Let there be established in each college a chair of dental ethics, from which shall be taught the clean and honest principles of the code, and methods of building up a practice in accordance with them; let the influence of the whole profession be thrown toward the colleges which maintain the highest standard of intelligence and educational qualifications, both in their matriculates and graduates, and point with greatest pride to the quality of their classes, rather than their quantity; let each member of the profession do all he can to maintain the dignity and honor of his calling, and promote its progress, by every legitimate means within his power, both in his private practice and in the dental societies to which he should belong, and the dawn of that long-delayed and much-sought-for era of professional honor and progress of which the founders of the code of ethics dreamed may yet be seen even by those living in the present generation.

AN INTERESTING OPINION.

THE following opinion, which is self-explanatory, will be of interest to all State boards affiliated with the National Board of Dental Examiners.

OFFICE OF ATTORNEY GENERAL OF
STATE OF CALIFORNIA,
SAN FRANCISCO, January 19, 1898. }

To State Board of Dental Examiners

(Care Dr. Thomas Morfiew, 702 Market street, City):

GENTLEMEN: I am in receipt of a request made on your behalf by a member of your Board, Dr. Thomas Morfiew, for an opinion as to whether or not the California State Board of Dental Examiners has any right or authority under the Act of March 12th, 1885, entitled "An Act to insure the better education of practitioners of dental surgery, and to regulate the practice of dentistry in the State of California," to affiliate or become a member of any association outside of the State of California, composed of several Dental Examining Boards of other States and Territories, having for its object a controlling influence over the management and decision of the several State Boards of Dental Examiners?

I am of the opinion that the power conferred upon your Board by the

Act in question to determine the reputability of colleges and to pass upon other questions relative to the licensing of dental practitioners in this State is a power which must be exercised by your Board itself, and cannot be delegated by your Board to any national association; and that, therefore, there is no authority conferred by that Act upon your Board to become a member of any such national association as that referred to in your question. Respectfully,

W. F. FITZGERALD, Attorney-General.

INGRATITUDE.—The *Dental Practitioner and Advertiser* for January hurls the following missile of merited rebuke:

We delight in calling ourselves a scientific profession. But the bald facts of the case are, that while we have done very much in the applied sciences, our real scientific work has been confined to a very few individuals, who have mainly had their labor for their pains. The two most-conspicuous examples of this are Miller and Black. The former ruined his health and sacrificed everything that usually makes life attractive, in his pursuit of scientific investigation for the benefit of his fellow-practitioners. He published the cream of his discoveries in a book, the half of the first edition of which yet rests on the publisher's shelves. Men give him any amount of cheap applause, but they decline to spend two dollars in purchasing the record of his work.

Black has written a number of works of merit, and yet not one per cent. of the dentists of America have even a superficial acquaintance with what he has done. The only remuneration that he has ever received has been from the colleges which, in the estimation of those whose work consists in words instead of deeds, have done so much to debase dentistry. That is the way we of America too often foster and encourage scientific investigation. That is the way we are inclined to pay the debts incurred to those who work instead of talk. And it is a singular fact that those who talk the most have done the least. But after all, that is nothing strange. It is the usual way of the world.

NOTES.

THE Pacific Coast Dental Congress for 1898 will meet at Portland, Or., instead of Salt Lake City; probably about the middle of August.

DR. GEO. H. CHANCE, of Portland, Or., was elected Vice-President of the Pacific Coast Dental Congress, at the last meeting of the General Committee, vice Dr. H. Griswold resigned.

THE Alumni Association of the Dental Department of the University of Buffalo publishes an official organ under the

title of *The Investigator*, with W. H. Snyder as editor. It is made a supplement to the *Dental Practitioner and Advertiser* for distribution.

THE Kansas City College of Dental Surgery has been disrated by the California State Board of Dental Examiners; hence a holder of its diploma will find it of no value when appearing before the Board for a certificate.

WE greet with pleasure *The Dentist*, an "independent journal devoted to the interests of the dental profession," published in London, England, by Hampton & Co. It is bright-looking and up-to-date in form and matter.

OBITUARY.

HENRY E. KNOX.

DIED in Oakland, Cal., December 12, 1897, Henry E. Knox, D.D.S., aged 66 years, 1 month, 3 days.

Doctor Knox was born in Blandford, Massachusetts, November 15, 1831. He attended the schools as were usual to New England during his boyhood, finishing with the Blandford Academy. Coming to California in 1852 he found employment at Mormon Island, on a fork of the American river, and also in Marin County. Illness caused him to return to New York City in 1854. While employed in a counting-house in that city in 1856 he was married to Colima Lightbody.

Possessing a fine bass voice and a musical ear, he was for several years a member of the choir of Dr. Storr's church, Brooklyn.

Four years after his marriage, with a wife and two children dependent upon him, he began the study of dentistry with an old schoolmate, H. B. Noble, D.D.S., in Washington, D. C., where, with the aid of government employment during extra hours, he was enabled to pursue his studies without neglecting his family.

He attended the first session of the Philadelphia Dental College, and graduated February 29, 1864. Dr. J. H. McQuillen was dean of the college, and Dr. J. Foster Flagg one of the professors. With the latter he formed an intimate acquaintance which remained uninterrupted during the subsequent thirty-five years of his life.

Spending the summer of 1864 in New York and New England, he was fortunate to be present at the dental meeting in New York city when rubber-dam, a new invention, was first exhibited and demonstrated to the profession by Dr. Barnum, the inventor.

Returning to California November 17, 1864, Dr. Knox was the first to demonstrate to the profession in San Francisco the use of the rubber-dam invention.

Establishing a practice in San Francisco he continued it until January,

1890, when, disposing of his office, he maintained his practice in Oakland, where he had resided from 1871 up to the time of his death.

Dr. Knox was a charter member of both the San Francisco Dental Association, organized in 1869, and the California State Dental Association, organized in 1870. He was president of the former in 1874, and corresponding secretary of the latter for many years, and held membership in both at the time of his death. He was present at every meeting of the State Association, except the one held in Santa Cruz in 1896, and a very regular attendant of the San Francisco Association until deafness rendered it impossible for him to hear either papers or discussion.

He was a clinical instructor in the University of California College of Dentistry from its beginning, and seldom failed his turn to clinic.

About 1868 his hearing began to be impaired, the cause being inflammation of the middle ear, communicated from the throat through the eustachian tube. Though slight at first the deafness increased from year to year till toward the last it was impossible to converse with him, except by artificial aid. By means of a dentiphone he was enabled to hear speeches, sermons and music with great satisfaction. Despite this affliction he was a man of unusual cheerfulness and good nature.

In 1888 he had a stroke of paralysis, which affected his right side, from which he recovered in a few weeks so as to be able to resume practice. In 1895, while alone in his office, he had a second stroke, which was more severe than the first, for at first he could neither speak nor move his right arm nor leg. So great was his vitality, however, that within three months he again resumed his practice, which he continued until the close of the day of December 10, 1897, when he made his final entries in day-book, cash-book and ledger, leaving his business record complete to the last. Within less than two hours, while sitting at the dinner table with his family, his left hand refused to grasp an object which he desired, and his arm fell helpless to his side. Realizing that another stroke had come, he had just time to say "good-bye" before the muscles of his throat became paralyzed, and from that time he could neither speak nor swallow. He was conveyed to his bed and his physician summoned, but nothing could be done to relieve him nor delay the end. For nearly two days he lay thus breathing with great difficulty, unable to take nourishment or medicine, but conscious till near the end.

His right arm was all he could move, for curiously the left side was affected this time, though it was the right side in both previous attacks. He tried many times to communicate by writing, but in most cases his attempts were illegible. Once he wrote quite plainly "I guess my time has come," and at another "good-bye."

He died Sunday, December 12, 1897, about 5 o'clock P.M. The funeral was held at his residence the following Wednesday, and there was a large attendance of his sorrowing friends, and delegations from the dental associations of which he had been a member. The Rev. Dr. J. K. McLean, who had enjoyed a twenty-five years acquaintance, in his discourse paid high tributes to the courage, amiability and genial ways of the deceased. Drs. O. Carpenter, S. M. Gilman, W. A. Knowles and L. Van Orden acted as pall-bearers, and accompanied the remains to Mountain View cemetery, Oakland.

Dr. Know's family consisted of his wife and four children, three daughters and one son. One of his daughters, Dottie, died in childhood, and another, Jemie, in early womanhood. His wife, one daughter, Mrs. Jennings, and his son Harry B. Know, survive him.

As a dentist, he was among the earliest of good operators, making almost a specialty of cohesive gold fillings, numberless specimens of which will stand yet many years to attest his faithfulness. His rapidity in excavating and in packing gold was wonderful.

He enjoyed a large and lucrative practice, which continued till his first stroke of paralysis seemed to shake the confidence of some of his patients, although, strange to say, it did not seem to interfere with either his rapidity or his accuracy. Always an enthusiast in dentistry he worked earnestly for its advancement.

He was an earnest Christian and a member of the First Congregational church, of Oakland, for over a quarter of a century. He was always liberal in his donations, sound in his creed and consistent in his actions. He believed the Golden Rule was given to work by, and all can testify that he did not shirk its responsibilities. His genial countenance, open heart and ready hand won him countless friends, who will long mourn his loss. He was pre-eminently a lover of his fellow man.

BOOKS RECEIVED.

PROCEEDINGS OF THE NATIONAL SCHOOL OF DENTAL TECHNIQS for the years 1893, 1894, 1895 and 1896. Published by Thos. E. Weeks and N. S. Hoff, editors for the Executive Board, Ann Arbor, Mich. The Inland Press, Printer, 1897.

"CATAPHORESIS"; OR ELECTRICAL MEDICAMENTAL DIFFUSION AS APPLIED IN MEDICINE, SURGERY AND DENTISTRY. By William James Morton, M.D., Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital, etc.; 267 pp., with 76 illustrations. New York: American Technical Book Co., 45 Vesey street, publisher, 1898. Price, \$5.00.

Publisher's Notes.

NEURECTOMY FOR TIC-DOULOUREUX.

Bernays' "Report of a Surgical Clinic," complimentary to the members of the Mississippi Valley Medical Association, contains the following, in reference to his patient's condition and treatment before neurectomy for tic-douloureux was decided upon:

"Case V.—The patient, aged 50, white, female. Family history: Has one sister who suffered from emotional insanity; otherwise the family history is good. Previous health excellent. The present trouble began with a severe neuralgic toothache, localized in the right lower molars. Paroxysms of pain were of daily occurrence, and most severe in the mornings about breakfast time. The pain subsided temporarily whenever the teeth were pressed firmly together or upon any substance held

between them, but only to return when the pressure was withdrawn. The presence of anything cold in the mouth, immediately produced the most exquisite pain; moderate heat produced a soothing effect. After two months the pain became continuous, and four molars were extracted without in any way relieving it. On the contrary, the pain increased in severity until October, when it ceased entirely for a period of two weeks, and then returned as severely as before. Another tooth was sacrificed, but without relief; the pain became continuous until last June, when it again subsided for a period of six weeks. A recurrence then took place, together with an involvement of the parts supplied by the second branch of the fifth nerve. Pain has been constant until the operation. She had strenuously avoided the use of narcotics, but during the more active periods of pain antikamnia ten-grain doses was found to be an efficacious obtunder." After describing the neurectomy, Prof. Bernay says: "Eight weeks have now elapsed since the operation, and no recurrence of the trouble has taken place."

STANDING COMMITTEES OF THE C. S. D. A.

THE following are the standing committees of the twenty-seventh annual session of the California State Dental Association, to be held at San Jose, June 21, 1898, as named by President Russell H. Cool:

PATHOLOGY AND SURGERY.—J. L. Asay (chairman), A. H. Suggett, A. H. Milberry, W. J. Taylor, D. Cave, G. W. Rodolph, J. E. Combs.

THERAPEUTICS.—W. F. Lewis (chairman), I. W. Hays Jr., N. I. Boone, J. P. Parker, H. T. Hendricks, B. B. Brewer, E. E. Park.

DENTAL CHEMISTRY.—J. D. Hodgen (chairman), Max Sichel, W. A. Knowles, W. J. Prather, S. M. Gilman, W. W. Eastman, W. E. Price.

OPERATIVE DENTISTRY.—S. E. Knowles (chairman), J. H. Hatch, A. F. Merriman Jr., J. G. Parsons, Emma T. Read, F. F. Tebbetts, George McCowen.

DENTAL PROSTHESIS.—J. A. W. Lundborg (chairman), H. D. Noble, A. N. Copsey, J. S. Knowlton, O. B. Burns, W. F. Sharp, T. J. Frazer.

DENTAL HISTOLOGY.—Frank C. Pague (chairman), H. P. Carlton, Marion W. Craig, H. R. Morton Sr., R. W. Meek, W. A. Moore, Wm. Wood.

LITERATURE AND EDUCATION.—Thomas Morfrew (chairman), T. N. Iglehart, F. H. Metcalf, D. L. Lucas, W. P. English, E. A. Younger, J. M. Blodgett.

MICROSCOPY.—A. C. Hart (chairman), Cecil Corwin, W. C. Reith, E. M. Porter, M. O. Wyatt, Alex. Warner, J. E. Cummings.

ORTHODONTIA.—C. L. Goddard (chairman), F. W. Bliss, A. H. Mories, F. Burton, A. H. Wallace, H. C. Davis, O. Carpenter.

CLINICS.—L. Van Orden (chairman), C. E. Post, C. H. Farman, J. T. Grant, A. M. Barker, T. W. Drullard, C. H. Pearce.

LOCAL ARRANGEMENTS.—F. K. Ledyard (chairman), W. DeCrow, G. F. Nevius, F. P. Ashworth, A. M. Barker, A. O. Hooker, H. B. Copsey.

PROGRAMME.—Frank L. Platt (chairman), F. M. Hackett, W. DeCrow, W. H. Halsey, W. Z. King, M. W. Levkowitz, Clyde Payne.

Pacific Medico-Dental Gazette

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SAN FRANCISCO, MARCH, 1898.

No. 3.

Original Papers.

TREATMENT OF THE DENTAL PULP.

BY ARTHUR W. CHANCE, D.D.S., PORTLAND, OR.

[Read before the Oregon State Dental Association, October 14, 1897.]

[T is with considerable misgiving that I attempt to interest you in a subject with which, no doubt, you are all familiar—the filling of those teeth in which the pulp is exposed or nearly so, an operation wherein this delicate organ must receive important consideration in determining our method of procedure.

In those teeth where decay has extended so far as to be in close proximity to the pulp, but a matrix of decalcified though not disorganized dentine remains, devitalization is rarely, if ever, necessary, even if there has been pain in the tooth previous to the patient's visit or during the process of excavating.

This pain is caused in most cases through irritation of the pulp, by pressure, thermal changes or the presence of an acid. Pain in such a tooth may vary somewhat in intensity; generally, however, it is but slight and of short duration, and may be easily controlled by the application of some soothing medicament placed on the dentine immediately over the pulp.

Our method of proceeding in such a case is to carefully remove with sharp excavators all decay which might interfere with the insertion of a lasting and satisfactory filling, scraping away as much of the decalcified matrix as deemed allowable, judged from our knowledge of the position of the pulp. Saturate the dentine remaining with an antacid; dry

NOTE.—The editors and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

and flood with applications of oil of cloves or cassia or campho-phenique, driving them into the dentine with blasts of warm air. These serve as disinfectants of the dentine and have a very soothing effect upon the pulp. Then, with a pad of gutta-percha or other non-conducting material, covering the vicinity of the pulp in such a manner as to prevent pressure from subsequent filling of the tooth, and held in place with rubber varnish previously applied, we are ready to proceed with the remainder of our filling, which will be a combination of the phosphate of zinc and gold or amalgam.

By following this or a similar method of careful protection of the pulp and disinfection of the dentine we may expect, almost invariably, that this *decalcified* matrix will become *recalcified*; the result being somewhat modified, perhaps, by such considerations as the health of the patient and consequent amount of vital force, age, climate, etc.

It is desired here to emphasize one point already mentioned. It is the danger of employing in vital teeth any of the zinc filling materials in which phosphoric acid is used as a menstruum without first protecting the pulp from irritation by the application of a varnish.

But when from excessive decay or in the preparation of a cavity it is our misfortune to discover an exposed pulp with, perhaps, a slight present or previous hemorrhage, or a pulp covered with but disorganized tissue; or when a patient presents suffering from an inflamed or extremely irritated pulp, with or without exposure, the pain of which it is beyond our skill to reduce easily or with but slight expenditure of time and effort, it is our opinion that there is but one rational and certain method of procedure, and that is devitalization; such considerations as health, climate, etc., carrying no weight whatever.

This is an operation which has caused our patients much unnecessary pain. If it is desired to remove the pulp and fill the tooth at one sitting, free exposure being secured by the application of a crystal of cocaine, a judicious use of the cataphoric appliance or hypodermic needle with a sat-

urated solution of cocaine should enable one to reach the apex of the root through the pulp canal, and with care remove its contents entirely without pain.

Or, if we wish to employ the slower method by the use of arsenic, an application of arsenious acid combined with the acetate of morphia, moistened with oil of cloves and applied without pressure on a crystal of cocaine, will in a great majority of cases secure for us in forty-eight hours complete devitalization, when we may remove the pulp painlessly.

If the pulp-canals are so small as to preclude the use of a broach in them they may be very easily enlarged, and the contents entirely removed by repeated applications of sulphuric acid, 30 to 50-per-cent., followed by a solution of bicarbonate of soda and the use of a Donaldson broach. Occasionally, however, we do not care to take the time that this requires, when we may, I think, with perfect safety use a modification of the mummifying process of Dr. Soderburg, described in the *Dental Cosmos*, of November, 1895. The radical statements there made, in regard to removing only the body of the pulp, leaving that contained in the root-canals to mummify and act as a filling material, is too great a departure from our customary methods to tempt the more conservative practitioner. But a few experimental cases in our own practice, in which the method has been employed, has enabled me to verify, in a measure, the claims made in the article. In these cases none of the pulp contained in the root-canals was disturbed, and the tooth was temporarily filled in the manner advised. Upon opening them after eight months' trial, not the slightest odor was detected, and, as no pain or inconvenience had been experienced by the patient during that time, they were filled permanently.

The discussion of the subject of root-filling, however, is outside the province of this paper, but it is desired to call attention to a precaution in the filling of devitalized teeth posterior to the cuspid that is not generally observed.

In removing the pulp you remove from the tooth its prin-

cial source of nourishment, and immediately it becomes very much more brittle. In many cases, through decay or a desire on the part of the dentist to secure more room for operating, there are left but the two lateral walls of the tooth, sometimes united upon one approximal surface, often entirely separated above the cervical margin. These walls in mastication are frequently broken, the fracture often extending far below the gum line, rendering crowning necessary and at the same time difficult. Such accidents are easily avoided by properly strengthening the walls of the tooth with phosphate of zinc, and, which is even more important by grinding away the occluso-lingual and occluso-buccal margins, allowing but little leverage to be brought upon them. This will also prevent excessive bearing upon the tooth, rendering it less liable to pericementitis, and will materially assist in saving it—a witness for all time to the skill and good judgment of the dentist.

SUMMARY.

1. Exposed pulp or one in which excessive irritation has taken place without exposure cannot be safely capped.
2. Pulps which have an organized matrix of dentine over them, not having been excessively irritated, may be preserved.
3. Devitalization and the removal of the pulp can and should be performed painlessly.
4. Pulps of teeth may be mummified.
5. Vital teeth in which phosphoric acid is used with any of the zinc preparations should be protected by a varnish.
6. Devitalized teeth should be protected from fracture.

TWO CASES FROM PRACTICE.

BY DR. MARK HAYTER, DALLES, OR.

[Read before the Oregon State Dental Association October 14, 1897.]

I REPORT the following two cases with the hope of obtaining an expression of this Association regarding the class of work treated:

First Case.—Mr. B., aged 20 years, while cutting wood in March, 1896, was struck in the mouth by a stick and

the superior central incisors were broken. The fracture was complete, all that held the parts together being the pulps, and gums on the palatal surfaces. The detached portions included about one-half the labial surface of the right central and a little less than one-half the left, and extended to the alveolar process on the palatal surface.

TREATMENT.—The loose crowns and pulps were removed, canals temporarily filled; cotton packed so as to prevent the gums from closing over broken surfaces, and remedies applied to remove soreness from surrounding parts. After all soreness had subsided posts were fitted to the pulp-canals and detached crown, and as the parts fitted together exactly, short grooves were cut from the canals for the surplus cement. The crowns were then cemented to place, and in due time the gums became reattached. The lines of fracture could not be noticed, except on close examination. Some eight months or more after the operation the left crown gave way. I have not had an opportunity to examine the case since, and do not know whether the crown was broken or the cement failed to hold. The other crown is in place yet, doing good service.

Second Case.—Mr. K., aged 40 years, came to my office on the 24th of last August with the left lower central incisor badly ulcerated and so loose that it could have been removed with the thumb and finger. Upon extracting the tooth the root was found to be more than half absorbed. I had intended to try replanting, but the absorption made it impracticable. It was then decided to insert an extension bridge, using the crown of the tooth removed for a dummy. All but a small portion of the root was sawed off, the remainder rounded, and a gold cap swaged to fit, allowing the edge to slightly overlap the enamel. A post was fitted to the pulp-canal and cap, then removed, soldered and reset (chlora-percha being used), and finished with suitable disks. Cap crowns were made for the remaining central and this dummy, extending about one-third of their length. The crowns were soldered together, and dummy cemented to place. After the soreness had left where the

tooth had been removed, the piece was cemented to place, with the dummy resting firmly upon the gum. This made a nice-looking, and, so far, very satisfactory piece of work.

There are dentists present, who, no doubt, would have done this work more skillfully and better than I, but the point I wish to bring out is this: Is it good practice to use the natural crowns in cases of the nature of those just reported?

SWAGING METALLIC PLATES.

BY DR. A. N. DICK, WOODLAND, CAL.

AFTER reading the articles in the April *Monthly* on swaging metallic plates, I wish to say that I have used successfully for five or six years the method described on page 527, in swaging both gold and aluminum.

But I believe that we have another process that brings equally good results with much less time and labor. I refer to a process mentioned, though not fully described, by Dr. R. Mathews, in *The Cosmos*, vol. xxxviii, page 647, who says that he uses a die metal, composed of forty-eight parts of bismuth, thirteen of cadmium, and nineteen of tin, and that it may be poured into a fresh plaster impression without waiting for it to dry.

He also states that for a counter-die he uses common modeling compound. That he softens it and places it in a ladle and drives his die into it, after which he cools it till it is hard and then swages his plate. That after using three or four counters made of the modeling compound he finishes with the shot method.

The alloy melts at a very low heat, and expands in cooling to make the outlines of the impression quite sharp.

To make the die, build up the impression with plaster into the form of a cup or mold about a half inch above the rim. Place on this rim an iron band half an inch wide and lute around with plaster, and pour the metal into the impression.

To make the counter-die use an ordinary moulding ring, filled almost full of modeling compound, made quite smooth

on the top. Turn the ring upside down in boiling water till the compound is softened half way through. Then force the die into it up to the lower edge of the iron band, and with the fingers press the soft compound to the die all around. Harden the compound in cold water. If one counter-die is not sufficient, another can be made in a few minutes.

Dr. Mathews expresses the opinion that the swaging cannot be completed with the counter-die made of the modeling compound; but I beg leave to say that a plate, either gold or aluminum, properly annealed, can be brought into contact with the die with no other counter than that made of the compound.

By this method the work is so simplified, and the time so shortened, that the impression may be taken, the plate swaged, and the wax ridge for taking the bite built up, and the bite taken, at one visit of the patient.

A few weeks ago a gentleman came in with a well-fitting rubber plate, saying that if I could make a gold plate that would fit as well as it did, he would have one made. So, instead of taking an impression of his mouth with plaster, I took his plate and prepared it for making a die and poured the metal into the plate, and with that die and two counters, made of the compound, I swaged a gold plate. The work was quickly done, and he says that the suction is perfect.

There are two points essential to success that ought to be emphasized. One is that the die must have an iron band around it; otherwise the force of the swaging hammer will split it. The other is, that the compound should not come above the edge of the iron molding ring; otherwise it will break away.

The fusible alloy costs about \$2.65 per pound; but that is a mere bagatelle when compared with the time and labor saved.

Since the foregoing was printed in *Welch's Monthly*, of July, 1897, the following observations, which have since been made, will be found of value in connection therewith.

IN MAKING AN ALUMINUM DENTURE: When the plate has been swaged to fit the die closely, the desired border of the plate should be described by drawing a line with a pointed tool. Then another line should be marked on the plate about three-twentieths of an inch above the first and parallel to it as a guide for trimming the plate. Then, with suitable pliers, the border of the plate should be turned down at the first line, after which the turned border should be malleted to fit into any undercut that may be in the die.

Then a new counter-die should be made of the modeling compound just deep enough to allow the turned border of the plate to impinge upon the upper margin of the counter-die, when the final blows may be given upon the swaging block. The object of allowing the turn at the margin to impinge upon the edge of the counter, is to put the plate slightly upon the stretch in the final swaging.

Another point that may well be observed in the making of an aluminum denture, is that where it is necessary to slit the plate in front, thereby making a lap, the two edges may be allowed to lap as far as possible, but they should be beveled with corundum paper discs, and, after adjusting the plate to the plaster model and before packing the rubber, a number of holes should be drilled through the laps to allow the rubber to run through and rivet them together, which will materially strengthen the plate at that point.

I would here call attention to a suggestion made by some writer in one of the journals recently, that after spurring the aluminum it should be painted, while dry, with rubber dissolved in chloroform over that portion that is to be covered by the rubber, in order to exclude the moisture.

A MEDAL FOR HEROISM.—Dr. F. C. Williams has been presented a gold medal by the Southern Dental Association in recognition of his bravery in saving the life of Dr. Jules J. Sarrazin, of New Orleans, while bathing at Old Point Comfort, last August.

Selections.

ARSENICAL NECROSIS.

BY OTTO E. INGLIS, D.D.S., PHILADELPHIA.

[Read before the Academy of Stomatology, Philadelphia, November 23, 1897.]

VERY little has been written in text-books for students upon the subject of the escape of arsenic trioxide from a cavity of decay upon the gum. A general warning to avoid such escape is alone given. Specific directions as to the treatment of any condition that may arise from carelessness in this direction are searched for in vain. Garretson recommends "repeated syringings, and gives the information that the sequestrum which is formed is seldom considerable." The writer has had the good fortune to be placed where a considerable number of such cases fall into his hands, and while he can gladly agree with Garretson in that the sequestrum is seldom considerable, he feels that the information is vague and not sufficient unto the need of the anxious young practitioner or student who has such a case on hand, as the result of his lack of care or ignorance. Accidents will happen, and we should be provided with the antidote, viz., a knowledge of how to proceed to neutralize or cure their effects.

First, let us consider how arsenic acts upon gum tissue. To this end the scientific experiments of Dr. J. H. McQuillen are worthy of attention. He took a frog, and to the web of its foot applied a grain of arsenic. The effect was noted by the use of the microscope. Dr. McQuillen says: "For the first half hour or so no apparent change was observable in the circulation; in a short time after this, however, the vessels sensibly increased in size and the circulation in rapidity of movement. The oval-shaped red corpuscles of the frog could be seen not only rushing through the vessels much more rapidly, but also in greater numbers than in the normal circulation. This continued for some time, and then the rapid motion of the circulation gradually decreased, the blood corpuscles moving along slower

and slower and apparently clinging to the walls of the vessels as if unwilling to leave them, and when doing so only yielding on account of the *vis a tergo*. The circulation went on decreasing until eventually complete stagnation supervened. This condition was not confined to the immediate vicinity of the spot on which arsenious acid was placed, but extended over the entire web. * * The first frog died promptly, and arsenic was found in the muscular tissue of its heart. A second frog, which was treated in precisely the same manner, exhibited similar local inflammatory effects, but the inflamed part sloughed out, leaving an aperture in the web. It lived over a week in the apparent enjoyment of health, and then, through the carelessness of a domestic, it escaped." Dr. McQuillen inferred that arsenic could be classed as an irritant poison. We may infer from these experiments that arsenic is absorbed into the general circulation or prevented from so doing according to the degree of inflammation existing between it and the heart. We have further evidence of this in the application of arsenic for the removal of tumors. If a small quantity be applied systemic poisoning may take place, but when a large quantity is used stasis is brought about so rapidly between the arsenic and the general circulation that absorption ceases because there is no circulation to superintend absorption. Bearing upon the consideration of this subject is the fact that, according to the authorities, the injection of arsenic produces enteritis. There seems to be no direct evidence that arsenic is a chemical irritant, escharing after the manner of phenol, which combines directly with the albumen of the tissues, although the statement has been made that arsenite of albumen is formed. In an attempt to determine this point the following experiments were performed. With a teaspoonful of fresh egg albumen, ten grains of arsenic trioxide were thoroughly triturated in a mortar at a temperature of 98° F. No coagulation took place at any time during a week or more, while the arsenic gradually settled to the bottom of the mortar, leaving clear albumen supernatant. A high tem-

perature would undoubtedly have coagulated the albumen. A second experiment was made, the arsenic being ground into the albumen and then three times the volume of water added and the mixture again triturated. A magma, composed of arsenic and albumen settled to the bottom of the mortar. The question now being whether the coagulum was due to the arsenic or to the water, a third experiment was performed. This consisted in taking one part egg albumen and three parts water and triturating. A flocculent coagulum was at once formed which, lacking the weight of the arsenic, did not settle.

We can only conclude that the coagulum formed by the water held the arsenic suspended in its meshes. The experiments are offered for what they are worth. So far as seen arsenic must be classed with irritants which act through the inflammation they are capable of producing.

Biddle states, upon the authority of Scolosuboff, that in arsenical poisoning, if in fresh muscle one part of arsenic be found, the proportion in liver is ten and eight-tenths parts; brain, thirty-six and five-tenths parts, and in the spinal cord, thirty-seven and three-tenths parts.

This would seem to show an enormous selective affinity of the drug for nervous tissue. May we not justly infer that this selective affinity accounts for the hyperæmia of parts distant from the seat of application (as in the web of the frog's foot)? In other words, that the drug after absorption exhibits an affinity for the vasomotor system producing paralysis of the vasoconstrictor nerves. This being permanent, the capillaries are unable to contract, and complete stasis results.

When arsenic escapes upon a gum, the first effect is probably the irritation of the vasomotor nerves and their subsequent paralyzation. This causes atony of the vessels and in consequence stagnation of blood ensues, as may be seen by the turgid condition of the gum festoon.

Later, this festoon becomes of a dirty yellow color, which signifies that it is gangrenous. The extent and directions of the necrosis depend upon the amount of arsenic which

has leaked upon the gum. As the amount is generally small, systemic poisoning cannot usually result, although it is probable that some arsenic is absorbed into the general circulation. When leakage of arsenic takes place from a tooth-cavity, different parts are attacked, according to whether the arsenic is confined against the gum septum or allowed to diffuse itself.

In the writer's experience, the mixture of arsenic and creosote, as furnished in the ordinary "nerve paste" has produced more serious results than the pastes in which the arsenic is distended with morphine or other admixture. This is another evidence of the fact that effect is in proportion to the quantity of arsenic allowed to escape.

The following may be held as expressing the amount of damage done:

1. Necrosis of gum septum.
2. Necrosis of gum border encircling one or more teeth.
3. Limited necrosis of bone directly underlying these parts.
4. Extension of the area of necrosis along the pericementum, with loosening and bloodless loss of tooth.
5. Necrosis beginning at some high portion of the alveolus, as when arsenic is applied through a perforation.
6. Necrosis beginning at the apical foramen owing to the forcing through of arsenic.
7. Necrosis of tissues of the cheek or lip.

Let us consider these in their proper order.

NECROSIS OF THE GUM SEPTUM.

This limited amount of necrosis could of course only occur as the result of leakage of a very small amount of arsenic, or as limited by prompt surgical interference. It will be evinced in its first stage by a turgid condition of the gum between the teeth. This will be succeeded by a yellow slough. The part should be thoroughly syringed to remove any arsenic present. The tooth-cavity may be opened, the pulp removed, and the canals filled. The slough should then be curetted away with a large spoon excavator or small lancet. Antiseptic gauze is then to be

placed against the gum between the teeth, and the patient is to be directed to syringe the part with three-per-cent. pyrozone or one to two hundred solution of potassium permanganate in water. Regeneration may be expected.

NECROSIS OF GUM BORDER ENCIRCLING ONE OR MORE TEETH.

This condition occurs as the result of leakage of a considerable amount of paste, the same not being confined to the dental interspace. It is apt to occur when very fluid preparations have been used in undue quantity. It is peculiar to fluids to follow the festoon of the gum. This may be noted when, during excavating, the gum has been made to bleed. The blood will trickle backward, following the line of the festoons. The same will also be noted with carbolic acid; if applied in excess, the festoons will be eschared. As carbolic acid is a common menstruum for arsenical pastes, it is not necessary to say more on this point.

NECROSIS OF BONE DIRECTLY UNDERLYING THE SOFT PARTS.

When a limited amount of leakage has caused necrosis, and the same is neglected, a small portion of the alveolar process becomes necrosed and forms a sequestrum. This may persist in its position for many months after separation, owing to the peculiar retentive shape of the bone. A certain amount of liquefaction into pus may result, but, as a rule, in from three to six weeks operative procedures are necessary. The sequestrum should be divided at its middle portion, and removed in two pieces.

When the bone has been lost, it is found that the adjoining teeth are denuded, their pericementum to an extent nearly corresponding to the size of the sequestrum. Some regeneration will take place, but there will also be more or less deformity resulting from the loss of bone tissue. It has been the experience that when a quantity of arsenic has been used larger than will produce a limited death of bone the pericementum is so affected that the loss of at least one tooth results. When the process has been affected, as will be indicated by its insensitivity at points underlying sloughing gum tissue, it should be gently scraped or burred away until sensitive tissue is reached. The part

should be frequently syringed with pyrozone and the result awaited. If nothing else be accomplished by this treatment, the arsenic at least will be removed and the extent of necrosis, in all probability, limited.

**EXTENSION OF THE AREA OF NECROSIS ALONG THE PERICEMENTUM,
WITH LOOSENING AND BLOODLESS LOSS OF THE TOOTH.**

This may result from confinement of arsenic against the septum or from its distribution around the festoon. These are the cases in which accrue results causing much chagrin to the operator. Nothing can be more disastrous to one's reputation than to bring about a deformity where a simple remedial measure was intended. When the arsenic begins its action upon the pericementum at the gum line, whether between the teeth or at the festoon, and the case is neglected for a few days, it may rapidly destroy the membrane. The tooth becomes loose and sore, and may in some cases be extracted with the fingers, or even in the attempt to remove a temporary filling.

The surrounding gum tissue is not always as much affected as one would expect. After the tooth is removed the alveolus is found bare, bloodless and septic. There is no doubt of its septic condition, as the odor of the tooth will resemble that of a tooth extracted for phagedenic pericementitis. The fermentation of stagnant saliva and serum will account for this. Were the case neglected at this point, it is probable that the alveolar cortex or process enveloping the tooth will be thrown off. A specimen is presented, taken from the mouth of a boy of fourteen years. Arsenic was applied to a distal cavity in a superior first bicuspid. The gum septum necrosed. Free curetting was indulged in, but the pericementum had been so profoundly affected that the tooth loosened and was extracted. Later the envelope of process was taken away.

**NECROSIS BEGINNING AT SOME HIGH PORTION OF THE ALVEOLUS,
AS WHEN ARSENIC IS APPLIED THROUGH A PERFORATION.**

The writer has seen several cases of this sort. When so applied, the necrosis extends in all directions, following the pericementum and attacking the bone. If promptly dis-

covered and treated by removal of the dead portion, some hope may be entertained of retaining the tooth, but only at the expense of loss of tissue. If neglected, not only one but two teeth may be lost, this being dependent upon the quantity of arsenic applied.

Perforation by drilling is not always easy to differentiate from a partially devitalized pulp. In doubtful cases it is better to avoid the use of arsenic. The following is a description of the only case occurring in the writer's private practice :

One busy day a lady requested treatment of a left lower second bicuspid, which had been in the hands of an incompetent practitioner. The patient could give no history, except that much pain had been inflicted. Examination revealed what seemed to be a complete exposure of the pulp, but which results proved to be a hypertrophied gum. The usual application was made and the patient dismissed for a few days. Upon her return a necrosed condition of the septum between the second bicuspid and first molar was discovered. The bicuspid was opened and found to be perforated upon the distal face of the root. The opening was a line in diameter, and made evidently with the intention of opening the root-canal. The case was cured by extraction of the bicuspid and curetting the parts.

In this connection it is well to call attention to the liability to this accident in cases of gum proliferation through a carious perforation of the root. The practice of establishing the diagnosis before attempting to apply arsenic is evidently correct.

NECROSIS BEGINNING AT THE APICAL FORAMEN.

There is no doubt in the writer's mind that many cases of chronic periodontal irritation have occurred as the result of careless broaching. In all cases where paste has been applied, especially when placed in the root, the arsenic should be removed by alternate broaching and syringing. The writer has never been able to positively connect arsenic with apical irritation, but has suspected its occurrence after the manner indicated in a number of cases.

A unique case has been reported by a professional friend. He made an application to a pulp, but, finding it only partially devitalized thereby, he applied cocaine by cataphoresis without removing the traces of arsenical paste from the tooth.

A slough of three lines' diameter appeared over the apex, but was gradually thrown off by tissue regeneration beneath. Whether this result was due to cataphoric action or to mechanical conveyance of the arsenic to the apical space is not clear. This history may cause us to infer that there exists toleration of a certain amount of aseptic slough by the tissues of the apical space. We may bear in mind to what extent the escharotic action of zinc chloride and carbolic acid are tolerated by these parts.

NECROSIS OF THE TISSUES OF THE CHEEK.

This simulates quite closely the ordinary aphthous ulcer, is usually slight, and requires little attention. If extensive, however, it should be treated upon the principle of exciting an inflammation to check the absorption of the drug. Free cauterization with argentic nitrate succeeded admirably in a case of deep penetration of arsenic into the tissues of the buccinator muscle at a point near the lower third molar. The treatment of arsenical necrosis of any magnitude with ferric hydrate has not resulted happily for the writer; perhaps the fault may lie in the difficulty of its maintenance in position. It is difficult to understand, however, why it should be expected to more than remove the unabsorbed arsenic from a part, inasmuch as dead tissue lies between it and the advancing arsenic.

It would be an omission, having stated the ill effects of arsenic when allowed to escape upon the gum, not to mention some means whereby leakage may be prevented. The quantity of paste used should be as minute as possible, and should be carefully sealed in the cavity. In accessible places, where the rubber-dam can be applied, and especially in the lower teeth, the application may be made upon the under side of a small piece of letter paper, and thin zinc phosphate flowed over it. The method is necessarily

of limited application, owing to the unmanageable nature of the zinc phosphate. Temporary stopping is a material much lauded for this purpose. It should never be used in cavities the margins of which go beneath the gum, unless the rubber-dam can be applied. As it requires a certain amount of pressure, which, if exerted upon the arsenic, will either insure its escape from the cavity or cause compression of the pulp, a cap of metal should be placed over the application. Pressure may then be exerted at will. Gutta-percha is a material too difficult of proper use to be relied upon in preference to temporary stopping.

A method employed by the writer is to first build in the cervical portion of the covering; next to make the application and cover it with a pellet of dry cotton; then to build in the remainder of the covering. Where cavity margins are in dangerous proximity to the gum, or where mechanical retention of the covering filling is but slight, and where the rubber-dam cannot be applied, nothing can be better than an amalgam made from an alloy of forty parts silver, fifty-five parts tin, and five parts zinc, and known as "Flagg's facing." It absolutely does not leak, but probably expands, causes no pressure in its insertion, does not discolor within a considerable length of time, and is easily removed with an excavator. When desired it may be relied upon for any reasonable period to maintain its position, even under the stress of mastication.

To illustrate: A right lower third molar had a large buccal cavity with the cervical margin under the gum, which also slightly overlapped it. The exposure of the pulp was complete, and business necessity rendered an immediate application desirable.

Though this represents, perhaps, an extreme case, yet the writer's experience is that in the clinical service frequently, and in private practice not so very seldom, cases of quite as puzzling a nature have to be dealt with. Facing amalgam, handled more or less in the manner about to be related, may be relied upon.

The cavity was first cleansed, and undercuts made along

the mesial and distal walls. Disinfection with three-per-cent. hydrogen dioxide followed. A pellet of cotton was laid upon the pulp, and a small portion of soft amalgam was inserted back of the flap of gum and pressed outward, carrying the gum with it. The cavity was then filled with the amalgam. An excavator was now used to cut down through the buccal aspect of the filling upon the cotton, which was then removed. Arsenic upon cotton was placed upon the pulp, and a small portion of amalgam used to seal the tap. When it is desired to remove the covering, a dentated bur is passed into the tap, and the filling easily divided in two, when the halves may be crushed together. Ordinarily a small cervical portion may be left for the support of the clamp during treatment of the case. When this is completed, it should, of course be replaced by other material.

When the exposure is found upon a surface which is inaccessible by any ordinary method, as when a cervical cavity exists upon a distal face of a molar, what is known as a "pocket" should be made. This is a drill-pit made in the direction of the horn of the pulp, and preferably, for pathological reasons, towards one that is not exposed. Sometimes the pulp may be very closely approached. Arsenical paste is then sealed in the pocket, while soothing medicaments are to be placed in the cavity of decay. Of course, cataphoresis may be considered in any of these conditions, but with that we are not at present dealing.

Within the past few days, and since this article was written, the writer was consulted by a gentleman from Demarara, who desired some fillings made.

In the course of the operation mention was made of the excellent quality of his teeth, and sympathy expressed for the loss of every tooth back of the first bicuspid upon the right side of the lower jaw. He said he had with his fingers removed them all at once, together with the bone surrounding them, as the result of an application of "something to quiet an aching tooth." There was a very flat and greatly depressed condition of the ridge where the teeth

had been lost, which seemed to bear out his statement. If there be truth in his story, we have no reason to doubt that arsenic was the medicament used, probably in considerable quantity. We may also learn to what extent necrosis may result without loss of a portion of the maxilla proper. The writer does not vouch for the case, but gives the facts as they were related to him. It may serve, at any rate as a warning, and at the same time as an encouragement, should an accident occur.—[International Dental Journal.

HOW TO ESTABLISH A DENTAL PRACTICE.

BY N. S. HOFF, D.D.S. ANN ARBOR, MICH.

THERE must be a personality. I am aware of the fact that many practices are established that are in certain directions and in some measures successful, and which seem to be entirely impersonal. Patients visit the New York, or Boston, or Battle Creek dental parlors and put themselves under the care of no one in particular, but, like chickens hatched in incubators, reared by a wooden box with cloth skirts and warmed by an oil lamp—a poor substitute for a vigilant, fat and well-fed mother hen. But I do not claim to know anything about hatching out dental practices on the incubator plan. I wasn't brought up that way, and of course I have little sympathy with this kind of practice building. In the kind of practice that I think we all crave, the personality, while not everything, is so important that I give it the first place.

We cannot regenerate men physically as we can morally. But I believe where incurable physical deformities exist much can be done, with a proper appreciation of the requirements necessary for the adoption of one to his environment. A man that is physically ill-formed may not be able to modify his conditions to make himself acceptable to everybody, and yet many an ill-natured person by persistent effort, thought and care-taking has been able to so modify his unattractiveness as to make himself entirely tolerable. I believe that all persons having such disabilities should be

advised of their disadvantage before entering the profession. There are many persons, however, trying to practice dentistry with defective eyes, and, unconsciously perhaps, are not availing themselves of the aids a good oculist could give them. There are many persons with crippled fingers, stiff joints and lack of acute tactile sense of the fingers, all of which stand in the way of successful practice. The skillful surgeon, a course of massage, or persistent attention to the care of the skin by systemic and local treatment would soon enable a bungling operator to appreciate the difference in the size of a lead pencil and nerve broach.

It is important to take into account temporary disqualifications, conditions of neglect in clothing, toilet, or the presence of disease or its results. Catarrhal trouble without proper care is bound to be offensive. If there is indigestion the conditions certainly demand peremptory correction. Eruptions in exposed parts of the body and other offensive conditions are to be scrupulously avoided. Strict attention to personal habits of cleanliness, combined with clean and well-selected clothing and ornaments, are of the the greatest moment, and scrupulous cleanliness, both internally and externally, are necessary and to be constantly striven for and kept in mind. It is above all necessary that the dentist should be above reproach or suspicion morally.

Again, an educated person will have decided advantage over one whose entire store of knowledge is confined to his profession, or is limited and characterless. Patients respect culture in their dentist, as in their preacher, doctor or lawyer. The broader a man's knowledge the wider will be his influence professionally. To obtain this degree of proficiency he must set a high mark for attainment; one that cannot be reached by a three years' or five years' course of study in any dental educational institution, but which shall only be reached after years of careful and painstaking effort to do the best possible for every case undertaken.

Simple as well as difficult cases should be subjected to the closest scrutiny, that nothing of value or interest in

any case may be overlooked. The early establishment of a systemic method in making diagnoses, and the treatment of every case by principles rather than without interest or mechanically is of the utmost importance. No dentist who performs his work in a perfunctory manner will respect or love his work, and his patients will know of it before he fully appreciates it himself. We always find that the man who gets interested in his own work and becomes attached to his calling, and finds himself appreciated by the community in which he lives, begins to think of his professional brethren, and he wants to know what they are thinking and how they get along with their work, and he subscribes for the dental magazines and begins to read, and then he wants to see these men who write and talk in society meetings. He wants to ask them some questions that he finds difficult to adjust, and so he joins his local, State or national dental society, and he attends the meetings as religiously as he does his church prayer meeting.

If we expect to attract intelligent and discriminating people professionally, we must be the embodiment of the highest ideas of the professional. We must actually live the life, not theoretically or ostentatiously, but honestly and conscientiously.

There must also be the faculty or ability to conduct professional business on legitimate and conscientious business principles. The comment is frequently made that professional people are notably deficient in business methods or habits. Few professional men accumulate large properties, although they may do considerable business and at good profit. Professional men ought to lay by a portion of their earnings, and begin early to do so, and keep everlastingly at it, and employ the safest means available for caring for these accumulations until such time as they are of sufficient amount to purchase productive real estate or safe mortgages.

But there is another way in which dentists, doctors and lawyers are frequently accused of being bad business men. This is in not meeting their obligations promptly. There

are of course rascals in the dental as well as in other callings, but all dentists who do not pay their debts promptly are not rascals, at least not intentionally. Many professional men are tempted or educated into this lax habit of not paying bills promptly by their patients. Doctors are probably the worst paid of all professional men, perhaps lawyers next, and, owing to their close relationship, dentists' bills are put off until the landlord, the grocer and baker are all paid, and if anything is left the dentist gets it, and after he is paid the doctor may get a portion. A dentist in full practice realizes that he is making a profit, and naturally thinks he has the right to use it for such necessities and luxuries as he may desire, and consequently spends or contracts to spend much of his money before it is collected. Or, if he is not so reckless, he reasons that when others owe him he has a right to hold off payment of his debts until some convenient time. This is a kind of logical justice that has no support in the moral code. Nevertheless it operates largely, and with men who would not like to be called selfish or dishonorable. The moral is that to have the confidence of the business community a dentist should pay his debts as promptly as it is possible, and never to spend his earnings until in hand. To do this he will need to give some thought to the manner of making his collections regularly and systematically, and without offense to his patrons. I have heard it said of dentists that their fees are often based not on the character and amount of the service rendered so much as on the ability of the patient to pay or the pressing needs of the dentist. I once had a dentist relate to me how he worked the fee he first planned to charge to more than double, simply because he had a willing patron and his wife insisted on his buying a handsome velvet cloak for their daughter. Such business ideas are not only selfish, but contemptible and dishonorable, and no man who practices them will permanently succeed, nor should he. Such habits will unquestionably demoralize business capacities and wreck professional life.

The vulgar display of our profession is not to be commended. It is not a good business idea for a young man when he decides on a location, to embarrass his future business success with an extravagant outlay for furniture, equipment or excessive office rent, which he has no immediate nor remote probability of being able to pay. I would not, on the other hand, advise a man to outfit so meanly that refined persons would hesitate to approach his premises, or that he would be handicapped in his work by inferior or inadequate accessories. But no man is justified in making what exceeds the bounds of good judgment in assuming financial obligations which may cause him to lose his professional and business integrity.—[Dental Register]

THE BREATH.

BY J. TAFT, M.D., D.D.S., CINCINNATI, O.

IMPURE breath is liable to occur at any and all periods of life. It is found in a great variety of phases—from the slightest perceptible deviation from the normal state to that in which it is loaded with a large amount and great variety of excrementitious matter from various sources, perceived sometimes even by the sense of taste, at least so far as the patient is concerned, but more especially by the olfactories, making such an impression through this channel as to produce nausea, and, indeed, the infection of contagious disease may be carried from one person to another by the breath. A vitiated breath as a means of conveying the seeds of disease is not duly appreciated by the public, and perhaps not so fully as it ought to be by the majority of physicians.

We involuntarily turn away from the fetid breath of our best friends. One may be beautiful in face and form, attractive in manner and fascinating in conversation, and possess personal magnetism that may be well-nigh irresistible, and yet an offensive breath will neutralize or destroy the influence or power of all these qualities.

In no other relation is this subject of greater moment than that existing between the dentist and the patient.

The degree of offensiveness is modified by the acuteness of the olfactories of one or both parties, together with the conditions of the exhalations, and the course or sources of the fetid breath.

If the dentist is subjected for a considerable time to this condition of things his general health may become affected in a more or less marked degree, according to his own susceptibility, and to the degree of vitiation of the air he is compelled to inhale. There can hardly be a doubt but what many suffer very greatly from this cause; and though one may not suffer much, or apparently at all in this respect, yet a sense of discomfort and uneasiness is always experienced by the dentist in his professional work when subjected to a vitiated atmosphere, and this will necessarily interfere somewhat with the thoroughness of his operations. It is a serious question whether the dentist ought ever to subject himself to such embarrassments, at least for more than a few minutes at a time. It certainly would be for the welfare and interest of both the patient and the dentist, were the former to be put upon proper treatment before having extensive operations made upon the teeth.

The offensive breath of the operator is a matter of special interest to the patient as well as to himself. The dentist has no right to make himself, or even to be a nuisance in any respect to those whom he serves, and if he has any just appreciation of the fitness of things, he will see to it that his presence in every respect is rendered as little objectionable as possible.

The patient is likely to suffer ill-health or prolonged discomfort from the fetid breath of the dentist, and, indeed, many of less acute sensibility, will be inclined by and by to seek more acceptable service.

The dentist should be able at all times to discriminate in regard to the character of his own breath; it may sometimes be a necessity to submit to this annoyance from others, but he should see to it that he never imposes upon

his patients in this way. I have known superior operators—persons of gentlemanly deportment in every other respect, whose breath was in such a condition as to disgust all those who came within its influence; indeed, I have known some such who were compelled to abandon the practice of dentistry.

There are some instances in which this affection seems uncontrollable, but in the great majority of cases it is amenable to proper treatment, and can either be modified, masked or wholly eradicated. It can in many instances be wholly, and with proper care, permanently relieved. In others the change is only of a temporary character, irrespective of any treatment that may employed.

Derangement of the stomach, alimentary tract, kidneys, liver or skin, is almost certain to result in more or less marked change of the breath, from the fact that in part, at least, the waste that thus fails to be removed is thrown into the lungs, and will, in many instances, produce a markedly offensive breath. But in some instances the breath may be contaminated with excrementitious matter that possessed little or no offensive odor. The defective function of the digestive apparatus is, in nearly all cases, a source of fetid breath. Disease of the lungs, of almost every variety, is attended with more or less vitiation of the breath.

Of the local sources of this difficulty, there are many, and of these there may be said to be two classes, the one embracing all the local disorders that may contaminate the breath after it leaves the lungs; this will embrace the various forms of diseases found in the throat, mouth and nose. Diphtheria, scarlet fever, tonsilitis and perhaps some other affections, though affecting the entire system, possess a local manifestation that results in greatly vitiated breath.

The various catarrhal affections that are found in the nose, the throat and mouth, in all cases more or less affect the breath, ranging all the way from the very mild, almost imperceptible, change to an intolerably disgusting degree. This affection should be well studied by the dentist, in order that he may be able to give his patient some, if not

permanent relief, and that he may protect himself so far as he may against an intensely annoying and offensive condition.

Diseases of the gums and mucous membrane of the jaws are often the occasion of this offensive condition. This will result, sometimes from a vitiated exudate from the mucous membrane, or it may occur, as is frequently the case, from a discharge from the margins of the gums, and from the sockets of the teeth.

Necrosis and sloughing of the bony tissues of the sockets nearly always produce a very offensive condition.

The discharge from alveolar abscess is oftentimes so vitiated as to load the breath which passes out of the mouth with an exceedingly offensive odor.

Decayed teeth are charged, especially by various medical writers, as a very frequent cause of offensive breath. This is true not only of physicians, but to a greater extent, perhaps, of the laity. There is not, however, as much in this as is usually attributed to it. Occasionally cases are presented in which an exceedingly foul breath is wholly attributed to one small innocent cavity of decay, in the grinding surface of a molar tooth. Were all other causes of offensive breath eliminated than that which comes directly from the decay of the teeth, there would be, in the aggregate, an immense improvement.

Another fruitful source of offensive odors of the oral cavity is found in the presence of foreign substances or matter in the mouth in the shape of soft salivary calculus, accumulation of food, and a glutinated mucus deposited upon the teeth or the artificial dentures undergoing decomposition, and necessarily throwing off an effluvia that will be mixed with the breath. The saliva and mucus, mixed thus with foreign substances, and retained for an undue time in the mouth, will undergo such change as to present a very offensive condition. Now as to these extraneous causes of the affection under consideration, it is not difficult for the educated person to determine what should be done; simply purification of the oral cavity in the most

thorough manner by the entire removal of all offensive material, and after this the intelligent use of disinfectants upon the teeth, mucous membrane and dental plates, if they are in the mouth.

With a large variety of disinfectants, antiseptics, cleansing materials and methods, there is no difficulty in rendering almost every such case free from the objectionable condition, for a time at least sufficient for operations.

A great many formulas have been given for the correction of offensive breath; the suggestions made for the use of these, however, in the majority of cases, are upon a false basis; with many of them it is only the substitution of one odor for another, or the mixing of two offensive conditions, and producing a third that is, perhaps, temporarily more tolerable than either of the others.

In treatment here, however, the aim should be, as in all other medical treatment, to attain the most permanent results; that doubtless, is the true theory of all medical and surgical practice.

Temporizing should never be employed when something better can be attained.

It is very desirable that the profession should give more attention to this subject than heretofore. In our literature very little will be found upon this subject, and in all medical literature, so far as I have been able to examine, only a fugitive reference to it has been here and there made; and I may here refer to these who have not investigated the subject to a little work entitled, "The Breath and the Disorders which give it a Fetid Odor," by Dr. Joseph W. Howe, the third edition of which was issued in 1885, and a paper published in the *Dental Register*, by Dr. D. C. Hawxhurst, vol. 27, page 104.—[Ohio Dental Journal.

WE contend that it takes special gifts and talents to teach; but we also contend that it takes no special talent or grit to discover that *some* graduates being turned out, even in this day and time, are not competent to practice dentistry intelligently.—[American Dental Weekly.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, FEBRUARY 8, 1898.

ADDRESS.—Dr. Corydon B. Root, "Possibility of Obtaining Immunity from Syphilis."

DEMONSTRATIONS —Dr. Russell H. Cool.

- a. Method of repairing a fractured molar or bicuspid.
- b. Method of preventing condensation of breath on mouth-mirror.
- c. Manner of lubricating finishing strips with paraffine.

DONATION — Dr. Thos. Morfrew. Copeland's Medical Dictionary; three volumes.

President Cool called attention to the fact that the Club had had presented to it one address and two papers on the subject of syphilis, and, it appearing to be the desire that some time be given to the members to prepare themselves for scientific investigation of the topic, the discussion of Dr. Root's dissertation was postponed.

DISCUSSION.—DR. COOL'S DEMONSTRATIONS.

Dr. F. M. Hackett.—I have repaired a first superior right molar by trimming the sides, taking impression of tooth, making band and driving it on.

Dr. A. F. Merriman Jr.—Where a tooth is split, drilling through the sides and inserting platina wire and screws (with the E. A. Bryant bridge-repair instruments) is very unique. After the operation was finished it had the appearance of a bucco-lingual gold-filling. It is certainly worthy of our attention. The banding of a tooth impresses those of esthetic ideas as being inartistic.

The placing of a simple saponaceous solution on the mouth-mirror and rubbing it off, thus making it immune to the condensation of the breath, is a good point. I have been much annoyed by having too frequently to wipe off mirrors. In the Eastern States a metallic mirror is used; it is warmed before use and the condensation of breath is avoided. Here, we see, that the use of soap on the glass mirror serves the purpose.

The use of paraffine for lubricating polishing strips is an excellent idea, and that I have tried with satisfaction. If

we would bring out more of these little ideas we would be much benefited.

Dr. C. B. Root.—I had a way of clearing mouth-mirrors by using warm water, but the past week I have used soap, and find it better. I always aim to have the mirror thoroughly sterilized in cases where the rubber-dam is not in use.

Dr. R. H. Cool.—The rubber-dam does not prevent the effect of the breath upon the mirror; the breath from the nostrils affects the mirror when operating upon the lingual surface of the superior teeth.

Dr. Merriman Jr.—The nasal-breath point suggested by Dr. Cool is one that I have considered for a long time. We are subject to the exhalations of our patients, who are not aware that the breath exhaled from the nostril is unpleasant to the olfactory nerves of the practitioner, who has as much right to be exempt from it as that the patient shall expect us to use aseptic precautions. When you find that the breath exhaled from the nostril is tarnishing your mirror or affecting your olfactory nerves, say to your patient, "Excuse me, I wish to place a piece of paper to prevent the breath from moistening the gold." Then cut a piece of paper that will slip under the folds of the rubber-dam that covers the upper lip, and bend it in front of the nostrils to form a funnel so that the breath exhaled by the patient will be conducted upward and away from the operator and the operation.

DISCUSSION—DR. MAX SICHEL'S CEMENT.

After a series of experiments for the improvement of his cement, Dr. Max Sichel submitted samples of what he termed "Sichel's Perfected Cement," which exhibited remarkable qualities of condensation toward porcelain hardness and brilliancy of polish.

Dr. Max Sichel.—After thirty years of experimenting I think I have at last found a cement that will supersede any now known. It gets harder, does not shrink and will not be affected by any action of the saliva. The composition is quite complicated in its manufacture.

Dr. R. H. Cool.—I have used Dr. Sichel's cement for about four years entirely, and have followed the improvements of the manufacturer. This last composition I consider far superior to any cement I have ever handled. It is so dense that it can be polished and burnished better than any other cement. It adheres to the walls of the cavity, resists a drill and, I believe, will withstand the action of the fluid secretions of the mouth. I know that Dr. Younger uses it exclusively.

Dr. F. M. Hackett.—I have been using Sichel's cement for quite awhile—in fact, I used his manufacture years ago. I switched off to others for awhile, using mostly Harvard until the past few months. I must say I have some fillings of Sichel's cement (not his latest, which is claimed to be much better) placed in large bicuspidis for over a year and a half which have not failed, and in my opinion no cement I have used equals it. It admits of a very fine polish to a smooth, glassy surface.

MEETING OF TUESDAY, MARCH 1, 1898.

There being no clinic, the Club devoted the session exclusively to a discussion of business affairs.

Dr. H. T. Hendricks, of Hanford, was elected to membership.

OAKLAND DENTAL CLUB.

THE March meeting of the Club was held in its new and permanent quarters in the Delger block on the evening of Wednesday the 2d. President C. L. Goddard called the meeting to order, and Secretary H. G. Chappel noted a fair attendance of members.

One application for membership was received and referred to the Executive Committee for consideration.

Dr. J. M. Dunn, as chairman of Committee on Illegal Practitioners, reported that a young practitioner, a college graduate, who had heretofore been in affiliation with a leading dental organization, had taken a notion to break away from ethical restraints, and was now in active competition with the advertising element, and had expressed himself

that it was his intention to conduct his method of practice to suit himself from a business standpoint.

As the practitioner is not a member of the Club it was decided it could do no more than give an expression of sentiment.

On motion a committee was appointed to revise the constitution and by-laws of the Club, as many changes had been made since their adoption. Drs. W. F. Lewis, H. G. Chappel and H. D. Boyes were appointed such committee.

The Room Committee was authorized to purchase a blackboard for purposes of illustration.

President Goddard here took opportunity to make some suggestions for the good and welfare of the Club, saying that his election as president came as a surprisable pleasure, for he had deemed it good business policy that the office be held by a member who was in local practice; however, he would abide by the decision of the Club to the best of his ability. He thought the society would enhance its value and promote its progress by inaugurating clinics, the management of which should be under the direction of the vice-president; that the clinics be held on the afternoon of each meeting day. The Club should encourage visits from the local practitioners; in fact, there should be a committee on visitors to specially secure the attendance of visitors to each meeting. Also that some member be designated to bring to the attention of each meeting some item of interest from the journals or other source, which would be verbally reported—not read—and which would be a subject for discussion.

Dr. Chappel here read a paper entitled "Trigeminal Neuralgia," which served to elicit considerable discussion, and will be printed in a future issue of the GAZETTE.

The President announced Dr. R. W. Meek as essayist for the April meeting, and Dr. D. A. Proctor essayist for May.

Dr. E. A. Upton was instructed to bring an item of interest, and Dr. Goddard volunteered, as an item, an exhibit of animal skulls and a case of prognathism.

SAN FRANCISCO DENTAL ASSOCIATION.

THE Association's March meeting, held on the evening of the 14th, was marked by an excellent attendance.

Vice-President G. N. Van Orden presided, the President, Dr. Platt, being unable to be present because of sickness from erysipelas.

Drs. A. C. Hart and M. F. Gabbs were elected to membership, and one new application was received and referred.

A communication from a member who had taken his departure for the Alaska mines, reluctantly tendering his resignation, was read and, on motion, it was voted that his name be carried on the roll with a remission of dues until his return.

Dr. B. C. Boeseke next read a paper, entitled "Our Instruments," which treated of a new topic in a very instructive way, and elicited an equally instructive discussion, led by Dr. Hodgen, and participated in by Drs. L. Van Orden, Fague, O'Connell and others. The paper will be printed in a future issue of the GAZETTE.

General Medical Miscellany.

FOR INSOMNIA.—Dr. Winslow Anderson recommends for insomnia ten grains each of trional and sulfonal taken in hot milk one hour before retiring. There is no apparent unpleasant after-effect.—[Pacific Medical Journal.

FORMALDEHYDE FOR BURNS.—Some of the medical journals of Paris are just now recommending formaldehyde in the treatment of burns, compresses soaked in a ten-per-cent. solution being applied to the affected part. It is said that in twenty minutes all the pain ceases, and that continued renewal of the application causes all traces of the burn to disappear, so that not the slightest redness of the skin is left. This goes with the ptomain-toxic element in burns, lately observed.—[Modern Medical Science.

DEATH FROM ANESTHETICS.—The German Surgical Society gives the following statistics for the past five years in regard to mortality from anesthesia. Chloroform was administered 201,224 times, with 88 deaths, or in the ratio of 1 in 2,286; ether, 42,141 times, with 7 deaths, or in the ratio of one in 6,020; chloroform and ether, 10,162 times, with one death; chloroform, alcohol and ether, 5,744 times, with 1 death; ethyl bromide, 8,967, with two deaths.—[Ex.

THEORY OF DEATH FROM BURNS.—Recent experiments and observations concerning the cause of death after burns show that deaths are caused by toxic ptomaines. The effects of burnt organs are the same when the organ is first removed from the body and burnt. Healthy animals inoculated with this die with the same symptoms as burnt animals. Death results, therefore, from the absorption of ptomaines produced by chemical changes in the tissues due to burns. Cure may be attained by the immediate transfusion of healthy blood or artificial serum.—[American Medico-Surgical Bulletin.

BULLETS IN THE BRAIN.—Steffen reports five cases of encysted bullets in the brains of children. In all the cases grave disturbances which varied according to the seat of bullet made their appearance, but in the majority of cases perfect recovery finally resulted. In two of the cases death, it is true, occurred some time after, not, however, as a result of the injury, but from intercurrent disease. He is therefore inclined to give a more favorable prognosis in gunshot wounds of the brain in children than in adults, for the reason that the brain of the child is better able to overcome the effects of such an injury, as it is still in the stage of development, and it is probable that other regions may take on the functions of the injured tracts.—[Berlin Klin. Woch.

CAUSE OF GENERAL GRANT'S DEATH.—The late Dr. Abbott, of New York, stated concerning the death of Grant (who was a patient of the Doctor) that the fatal disease had its

incipiency from a slight irritation at the base of the tongue, caused by a broken molar tooth, to which he paid no attention. He continued to smoke; the tooth continued to irritate the parts, lacerating the surface, and by and by the tissue began to develop new cancer cells, and almost simultaneously with the development of new cells was a breaking down and a development of a characteristic epithelial growth. The disease process began to extend down the pharynx, involved the lymphatic glands, and when it reached a point that made it almost impossible for him to tolerate the pain, he applied for relief, but it was too late.—[Ex.

DEATH AND AILMENTS FROM CURIOUS CAUSES.—In combing the hair of a corpse an Indiana woman absorbed poison from the scalp abscess through a scratch on her hand, and died of blood poisoning.

A metal collar button chafed the neck of a Philadelphia policeman, a carbuncle formed and death ensued.

Ice from a stagnant pond caused an outbreak of typhoid at the Kentucky Insane Asylum.

An autopsy made by Dr. Little, of New York, upon the body of a tea drunkard showed that the heart had a clean break in it.

Five Richmond (Va.) boys filled a cast-off sock with water, and sprinkled each others' faces. All were poisoned, and one lost an eye.

The hearing of a chaplain of an Ohio orphan asylum was so affected by a premature explosion of fireworks that almost total deafness has resulted.

The recent death of a boy from eating buttercups has called forth a list of other poisonous flowers, among them the celandine, wood anemone, daffodils narcissus, lily, snow-drop, jonquil, wild hyacinth, monk's hood, foxglove, nightshade, briony, mezerone and henbane.—[Ex.

TOTAL EXTIRPATION OF THE STOMACH.—That the stomach may be completely removed without seriously changing the metabolism and nutrition of animals has been demonstrated a number of times. How long an animal will live in good

health without a stomach is still a matter of doubt, as the time which has elapsed since the institution of this line of experimentation has been too short to form a final opinion. The celebrated "Czerny dog," whose stomach was removed by Czerny in 1878, lived five years, and was then killed for anatomical investigation. The post-mortem showed, however, that a small part of the cardiac extremity of the stomach had not been excised, and a small sac, with gastric functions, had been formed from this remnant of the stomach. Excepting the case which forms the subject of these lines, the gastrectomies performed on the human subject have never been complete; a small part of the cardiac extremity always remained attached to the œsophagus. It was considered by gastrectomists impracticable to remove the entire cardiac extremity of the stomach, as it seemed very difficult to pull down the œsophagus sufficiently for the total extirpation of the organ. The first, and, so far, only total gastrectomy, was performed about three months ago by Dr. Carl Schlatter, of Zurich. In Dr. Schlatter's patient it was possible to sufficiently pull down the stomach to sever the cardiac extremity in œsophageal tissue. Two conditions may have contributed to this, in a carcinomatous stomach, unusual condition. In the first place, the organ was readily movable, and, secondly, the weight of the carcinomatous stomach may have dragged down the œsophagus more than usual. According to Schlatter, the prosector at the University of Zurich has determined in his investigations in the dissecting room that the lower subdiaphragmatic portion of the œsophagus can always be elongated by traction. According to these investigations it would appear that where a carcinomatous stomach is freely movable, as in Dr. Schlatter's patient, a total extirpation of the organ is usually feasible. In reporting the case Dr. Schlatter stated that he made considerable traction in pulling the stomach downward before severing the œsophagus. His patient was in relatively good condition three months after the operation. Microscopic examination of the specimen showed the neoplasm to consist of a small celled alveolar

glandular carcinoma. As the case is the only known total ablation of stomach that has ever been performed upon a human subject, considerable interest is attached to it from a physiological standpoint, and scientific investigation with reference to physiological functions have been conducted at the chemical, physiological and pathological laboratories of the University of Zurich. The conclusions based upon these investigations have been briefly summarized by Dr. E. C. Wendt, in a discussion of the case in the *Medical Record* of December 25, 1897, as follows :

1. The human stomach is not a vital organ.
2. The digestive capacity of the human stomach has been considerably over-rated.
3. The fluids and solids constituting an ordinary mixed diet are capable of complete digestion and assimilation without the aid of the human stomach.
4. A gain in the weight of the body may take place in spite of the total absence of gastric activity.
5. Typical vomiting may occur without a stomach.
6. The general health of a person need not immediately deteriorate on account of removal of the stomach.
7. The most important office of the human stomach is to act as a reservoir for the reception, preliminary preparation and propulsion of food and fluids. It also fulfills a useful purpose in regulating the temperature of swallowed solids and liquids.
8. The chemical functions of the human stomach may be completely and satisfactorily performed by the other divisions of the alimentary canal.
9. Gastric juice is hostile to the development of many micro-organisms.
10. The free acid of normal gastric secretions has no power to arrest putrefactive changes in the intestinal tract. Its antiseptic and bactericidal potency has been over-estimated.—[St. Louis Medical Review.

ELECTRICITY IN DISEASES OF THE NOSE AND THROAT.—The ease with which electricity can be applied to the cavities of

the nose and throat has led to a large experience with electro-therapeutics in these regions.

The temptation to the use of electro-cautery has been specially alluring. Obstructions not large enough to demand the saw or chisel have been the favorite points of attack with the electrically heated wire. The method appears simple enough; all that seems necessary is to cocaine the parts, place the wire in position and turn on the current. The results, however, are not always what one expects, even though he be skilled in the use of the current. If one is at all careless in the after-treatment, he is apt to meet with results similar to those the writer observed in the following case:

The patient complained of pain over the left brow accompanied by ringing in the left ear and dullness of hearing. Her physician was treating her by medicating the internal ear through the eustachian tube, and spraying the nose and throat with an alkaline and antiseptic solution. Getting no very definite results, he asked me to examine the case with him (I happened to be calling upon him while passing through the city on my way west). Discovering that the superior turbinate was largely in contact with the septum, I called his attention to the fact and suggested that it might account for the trouble. Just then the patient exclaimed, "Oh, that trouble has been attended to; my former physician burned it with electricity." So he had; but was not careful about the after-treatment, and the raw surfaces of the turbinate and septum had grown together, forming a dense band. Whether or not the breaking up of this cicatricial band, which was not easily accomplished, caused the annoying symptoms to disappear I do not know, having seen the case but the once. I have cited the case merely to make apparent what unpleasant results may follow the electro-cautery without very careful after-treatment. Indeed one is apt to grow less fond of electro-cautery in the respiratory passages as his experience grows larger. He finds that the forceps, cold snare, tonsillotome, etc., are not easily supplanted by it.

The electrolytic and cataphoric effects of electricity are far more useful and promising. To these we devote our short paper. To reduce an enlarged tonsil by electrolysis is a slow method compared with the use of the tonsillotome, and the latter is far preferable where the tonsil is large and readily seized; but there are flat, elongated tonsils which cause much trouble, and where the use of the tonsillotome and like methods of removing are not applicable; these yield slowly but surely to the negative electrode with its needle-shaped point. Recently a case in which a flattened tonsil extended low down and caused much irritation and considerable pain in swallowing, the electrolytic action of the needle, extending over a period of weeks, caused a large degree of shrinkage, and ultimately entirely relieved the dysphagia and cough.

In smaller adenoids the electric needle is of much service, and hypertrophies in the neighborhood of the turbinates may be much reduced by it. But in the treatment of ozena is where a most promising field lies for the cataphoric effect of electricity. To insert a copper or silver needle deep into the mucous membrane of the turbinate which is the most usually affected (the middle), and a steel needle into the lower one, and pass a nicely regulated current from a galvanic battery between these electrodes means a radical change in the character of the mucosa.

The greenish color of the membrane tells how much copper salt (the oxychloride) has been deposited in the tissue, and the betterment in the odor tells how rapidly it modifies this unpleasant feature of the disease. Instead of atrophy following, we are more apt to have an attempt at restoration of the normal tissue. The use of cocaine makes this method painless; but one needs to possess the means of carefully regulating the current, and especially the source of a constant supply of current. Aseptic precautions are, of course, necessary.

A far more delicate use of the cataphoric effect of electricity is the driving of medicinal substances into the tissues of the larynx in cases of tubercular laryngitis. And

here is where it is worth while to experiment with this peculiar effect of the electric current. Of course, the same objection obtains to the use of irritants in this manner as does to the application of them by means of sprays or applicators, as the current in driving irritating solutions into interstitial tissue does not lessen their irritating qualities.

In applying this treatment to tubercular laryngitis, the least promising affection for any local treatment in this region, the parts are first sprayed with a four-per-cent. solution of cocaine, and then the positive electrode, holding the solution to be used, is applied to the diseased spot, the negative electrode being applied to the neck, covering considerable surface there. As the current passes from the positive electrode to the negative it carries with it into the tissues the medicine whose germicidal and other effects are to be manifested there. Creosote has been found too irritating; likewise zinc chloride. Iodine is better borne. Guaiacol is by far the least irritating, and its benumbing influence is said to outlast that of cocaine; besides being far safer for repeated use. The least irritating and at the same time not the least microbicidal is the oxychloride of copper. This is made by the action of the fluids in the tissues upon the positive copper electrode at the place of contact. This electrode should be of pure copper, as impurities in it, notably zinc, will generate salts which are quite irritating. As the current passes into the mucous membrane of the larynx, oxychloride of copper is formed by the action of the fluids of the tissues upon the copper positive electrode, and this is carried along with the current. We may trust with much confidence to the destructive action of this salt upon the tubercle bacillus, and as well to its stimulating effects upon the tissues. The current used must be mild, five milliamperes being the average. Of course the faradic, or induced current, is not applicable here, as, reversing itself constantly, it possesses no cataphoric properties.

Monell, whose large experience in electro-therapeutics makes him an authority upon the subject, says the advan-

tages he has found in applying this treatment to laryngeal tuberculosis are:

1. There is no real destruction of the tissues, and there are no lacerations of the surfaces which might form a point of entrance for new pathogenic germs for reinfection, as is the case with the method of curettage, and, to a certain extent, also with the galvano-cautery and simple electrolysis. The cure is effected by the healthy reaction of the tissues in the same manner in which we often see specific lesions heal when the system is under the influence of mercurials.

2. In cases which I have treated by this method there has been absolutely no reaction or hemorrhage following the application—a point of great importance with tuberculous patients.

3. This method does not demand the high degree of manipulative skill required for curettage, or the manipulation of the electro-cautery in the larynx, and is especially simple when direct laryngoscopy can be used.

COUGH CAUSES OUTSIDE THE LUNGS.—Barnhill gives as the principal reflex causes:

In the ear—Impacted cerumen, foreign body, cholesteatoma.

Nose—Hypertrophies, septal spurs, polypi, foreign bodies and crusts of atrophic rhinitis.

Naso-pharynx—Adenoids, polypi and other growths.

Pharynx—Elongated uvula, granular pharyngitis, hypertrophy and other diseases of the tonsil.

Glosso-epiglottic spores—Enlarged lingual tonsils and varicose veins or a too greatly curved epiglottis.

Larynx—Mucus or pus, congestions and thickening of mucous membrane, papilloma or other growths.

Other parts of the body—Pressure or irritation of the vagi is the most frequent cause.—[Laryngoscope.

ASTHMA AND INSANITY.—Warren, in a short and practical article on asthma, calls attention to the close relationship

asthma often bears to insanity, and the neuroses, and that very often the asthmatic attack takes the place in insane patients of a neurotic attack.—[The Physician and Surgeon.

OSTEOLOGY.

How many bones in the human face?
 Fourteen when they're all in place.
 How many bones in the human head?
 Eight, my boy, as I've often said.
 How many bones in the human ear?
 Three in each, and they help to hear.
 How many bones in the human spine?
 Twenty-six, like a climbing vine.
 How many bones in the human chest?
 Twenty four ribs, and two the rest.
 How many bones in the shoulder bind?
 Two in each—one before and one behind.
 How many bones in the human arm?
 In each one—two in each forearm.
 How many bones in the human wrist?
 Eight in each if none are missed.
 How many bones in the human hand?
 Five in each with many a band.
 How many bones in the fingers ten?
 Twenty-eight, and by the joints they bend.
 How many bones in the human knees?
 One in each, the knee-cap please.
 How many bones in the human hip?
 One in each like a dish they dip.
 How many bones in the human thigh?
 One in each and deep they lie.
 How many bones from the leg to the knee?
 Two in each and plain to see.
 How many bones in the ankle strong?
 Seven in each but none are long.
 How many bones in the ball of the foot?
 Five in each as the palms were put.
 How many bones in the toes—half-a-score?
 Twenty-eight, and then no more.
 And now altogether these many bones fix,
 And they count in the body two hundred and six.
 And then we have the human mouth
 Of upper and under thirty-two teeth.
 And now and then a bone I should think
 That forms on a joint or to fill up a chink.
 A sesamoid bone, or a wormian we call.
 And now we may rest for we've told them all.
 —[Indian Medical Record.

Dental Excerpts.

DIRTY WAX.—To renovate dirty wax, melt in water. When cool, scrape the dirt from the under side; melt again in pure water, and add one tablespoonful of sulfuric acid when it comes to a boil.—[British Journal Dental Science.

DEATH CAUSED BY A FILLED TOOTH.—A railway superintendent had two teeth filled. One of them ulcerated, swelling of cheek, pus, etc. The tooth was extracted, but it was too late. A consultation of three doctors was called, but it was of no avail to check the infection. Four days after the extraction the patient died of an empyema in the thoracic cavity.—[Odontologie.

A METHOD of crowning very hollow roots by use of a soft wooden peg the shape and size of metal pivot in crown to be inserted is as follows: The root is roughened where there is least fear of perforating it; the peg is inserted in root and amalgam packed around it to the margin of gum. After the amalgam is set the peg is drilled out and the crown set.—[Dr. Teague in American Dental Weekly.

TO SHARPEN HYPODERMIC NEEDLES.—First pass the cleansing wire through so that it protrudes at both ends of the needle. Take a corundum wheel, and with the engine grind off the point of the needle with the wire at the same time. The wire can then be pushed through from the other extremity, carrying all the débris with it. Thus the needle will be perfectly clear.—[Dr. F. B. Spooner, Dental Digest.

MENTHO PHENOL.—Dr. J. Morgan Howe, at the New York Institute of Stomatology, introduced a remedy for toothache, composed of one part of phenol crystals to three parts of menthol and melting the substance. It is a fluid of pale amber color, and aromatic odor, very pungent in taste but not caustic. He finds it useful in pulpitis. Two drops to an ounce of water make an excellent mouth-wash.—[International Dental Journal.

THE VALUE OF ASSOCIATION.—I have been a society man from the beginning. On the day I received my degree I joined the old Mississippi Valley Association, and was a member till its dissolution. I often said if my relations with dental associations had been cut out of my dental life it would have been comparatively a blank, nothing but drudgery and hard work; but it has been the meeting with my fellows that has stimulated me.—[Dr. H. A. Smith in *International Dental Journal*.]

NAUSEA FROM CHLOROFORM.—When an operation under chloroform has been finished, pour vinegar upon the mask until it is well saturated, and leave the mask in place. As the vinegar evaporates more should be added. This simple procedure has a marked effect in preventing or modifying the nausea after chloroform anesthesia. It was first advised by a French surgeon who says that it acts by the vinegar's forming a non-irritating combination with the chloroform vapor already changed in the lungs.—[*International Journal of Surgery*.]

ABSCESS IN THE BRAIN OF DENTAL ORIGIN.—A case of dental origin, which ended fatally, is related by Dr. Silax before a meeting of the Medical Society of Berlin. The patient, a boy of 12 years, complained of excruciating pains, with an exophthalmia of one eye. An opening was made in the frontal sinus, but without any result. An infectious meningitis appeared after nine days. The autopsy showed that the superior part of the brain was coated heavily with pus; the base of the brain was free from pus. This abscess had worked its way for some time, but had not caused much trouble; nevertheless it had brought the inflammation of the antrum, caused by a decayed molar.—[*Odonologie*.]

RECOVERY OF PLATE FROM ŒSOPHAGUS.—At Rockendorf, Germany, a young lady swallowed an artificial denture of nine teeth; the plate stopped in the œsophagus. On the advice of her physician she was directed to the surgical

clinics of Jena. They proceeded immediately in practicing œsophagotomy. The operation was performed successfully, the plate withdrawn, and the act of healing was done rapidly. To know exactly the point where the plate was located after deglutition, X-rays of Roentgen were used. Having obtained a photograph it enabled considerably the operators. One peculiar effect of the rays on rubber plates is that the rays will pass through the rubber, showing only the clasps and the artificial teeth.—[Odontologie.

FASTIDIOUS OPERATING.—If there be any one thing which a dentist should cultivate, it is a delicacy and lightness of touch. Some dentists whom we have known go at their work like a miner with a pick-axe. They are rough, harsh, and their hand, whether with the excavator, the plugger, or engaged in adjusting the various appliances of our art, is ever heavy. Their arms always rest burthensomely upon the patient's head. Their finger nails are continuously digging into tender tissues, and there is a coarseness and clumsiness about their operations that marks an unpardonable heedlessness of the comfort of the patient. There are few things which so forcibly commend an operator to those under his care as tenderness and even daintiness in regard to their sensibilities. The engine bur should be directed as if it were a sentient thing, and napkins should be used as if they were spontaneous production.—[Editor, in Practitioner.

ARSENIC TOOTHACHE PREPARATIONS.—A personal experience has led me to believe that there is a great evil practiced by druggists in dispensing a preparation of arsenic for relief of toothache. One evening, when suffering from pulpitis, I asked of a nearby druggist a preparation of oil of cloves and morphine acetate. He assured me he had a preparation containing only those ingredient. Reluctantly I accepted his cure, with the result of increased pain. Upon examination next day by a professional friend necrosis of the gum septum was found. Inquiry elicited the fact that incorporated with the mixture was also a percentage of ar-

senic. As not only this particular druggist, but several others of whom I have inquired, have wonderful faith in this preparation, I think that we should caution their profession against the evil results likely to come to the patient from the use of arsenic in so careless a manner.—[Dr. G. H. Chance in International Dental Journal.

THE CARE OF VULCANIZERS.—In spite of the fact that the vulcanizers sold by the reliable manufacturers are submitted to severe test by hydrostatic pressure—some of them to a pressure of 900 pounds to the inch—explosions have not been unfrequent, generally due to the ignorance of the assistants who watch them, or pretend to watch them, during the process of vulcanization, and not a little to the carelessness of the dentists themselves, who fail to impress upon the students that these little steam boilers require as much attention as boilers of greater capacity. In the first place, it does not pay to use cheap vulcanizers any more than cheap German tools and instruments, or the cheaper grades of artificial teeth. In the next place, one should familiarize himself with every part of the machine; realize the importance of keeping it and its belongings clean, and adhere strictly to the rules laid down by the manufacturers. Where thermometers are used, it ought not to be forgotten that too rapid and too great heat at starting, especially if the flame is allowed to surround and reach the top cover, may deceive, and that the thermometer at 320 ° may really indicate only the temperature of the cover, and not that of the flask inside. The safety disk used on some modern vulcanizers should not be forced on too tight, as this weakens them. The boiler should on no account ever be perfectly full of water; at least one inch or more of steam room should be left above the water. When the heat is first applied, the valve for the escape of steam should be opened for a few minutes to allow a free escape of steam, as this leaves in the boiler, after the valve is closed, an atmosphere of pure steam, and precaution should be taken not to use any more force in closing the valve than is nec-

essary to make it steam-tight. We are warned, too, not to daub too much black lead or soapstone powder about the packing. In fact, it is better never to use any if it can be avoided. Oil should never be used, as it rots the rubber packing, and may become gummy and cement the core to the pot, to the damage of the rubber packing. Too frequent use of the black lead and soapstone wears away the the screw thread. In heating up, the flame should not be larger than will cover the bottom of the boiler. If students can have these simple instructions put into their brains, it may save some of them from having their heads blown off. If they will not attend to them, they deserve to be killed. Thermometers, in the cities, ought to be relegated to the list of things which are obsolete in the laboratory. Proper gas regulators and steam gauges should be used, and dentists owe it to themselves and their students not to neglect any proper precaution in the use of these laboratory demons.—[Indiana Dental Journal.

USEFUL HINTS.

TRY exol hypodermically for painless extraction. It is safe and successful.—[Editor Dominion Dental Journal.

FLUID extract of Jamaica dogwood is recommended to be superior to aconite and iodine for tenderness of a tooth after filling root canal.—[Ex.

WHEN caries extend to the bifurcation of roots, make a mat of two or three layers of tin, place it in the bifurcation and use it as a base in filling the rest of the cavity with amalgam.—[Dr. H. L. Ambler.

AFTER extracting abscessed teeth always syringe the sockets with hot water and an antiseptic. Especially is this wise in the lower jaw, where by gravitation pus may remain in socket after extraction.—[Dom. Dental Journal.

FROM art stores can be procured clay which, if mixed with glycerine, will make moldine or molding clay. It may be mixed with water, but that dries out quickly, and requires a new mix for each use.—[American Dental Weekly.

News Miscellany.

THE Polyglot Publishing Co., St. Louis and New York, announces an illustrated magazine in twelve editions, each in a different language.

DR. D. R. JENNINGS, lately deceased, once said: "I find that men who save exposed pulps do so in their minds."—[Western Dental Journal.

JAPANESE women are agitating the question of suffrage, are about to erect a women's university, and many of them are already practicing medicine.—[Dental Register.

CHICAGO physicians object to the use of cocaine on firemen's eyes as practiced in New York. They claim that cocaine thus used is apt to give rise to the habitual use of the drug.—[Dental Register.

A PHYSICIAN who has just returned from a visit to Persia says that the Persians still believe that human tears are a remedy for certain chronic diseases. At every funeral the bottling of mourners' tears is one of the chief features of the ceremony.—[Ex.

A PRINCE M. D.—The Prince of Wales, at the last meeting of the British Royal College of Physicians having been elected a member of that august body, from now on has the right to commence medical practice in the United Kingdom without interference on the part of the authorities.—[Dental Register.

THE METAL-GNAWING BEETLE.—In 1888 an individual specimen was brought to New York from Mexico, and later others have been seen. They are one and a half inches long and somewhat mottled. They can cut their way out of wooden or pewter receptacles if there be an exposed edge. They do not bore. Mr. F. W. Devoe, of Fulton street, has reported before the New York Microscopic Society the experiments made by him. His beetle, by aid of

its mandibles, cut away the pewter between two holes and united them in one as an avenue of escape. The bits were not swallowed but dropped in the jar, and are now in evidence. The mandibles must be harder than the metal in order to cut it. This beetle is called *Zopherus Americanus*. It has not been known to cut iron or steel.—[Ex.

DOCTORS OF MEDICINE who undertake the care of the sick are subject to punishment for malpractice, or for professing qualifications which they do not possess. There is an organized system, however incompletely it succeeds, for the protection of the public against medical incompetents and imposters. But there seems to be no recognized method of ascertaining the competence of a Christian science healer, nor anything to hinder any crank from hanging out a Christian science sign, and assuming responsibility for the gravest diseases.—[Life.

A CHINESE DOCTOR SUES FOR A LICENSE TO PRACTICE.—Dr Don Sang, a Chinese physician of Crown Point, Ind., whom the State board of medical examiners had refused to license, has brought suit in the federal court to have the State registration law declared unconstitutional, and a temporary restraining order has been granted pending a final hearing in November. The complainant alleges that he is a native of Canton, China, and that his family represents nine generations of medical practitioners. His father was attached to the medical staff of the emperor. All of his family studied under the most rigid regime in the Sang hospital, which was established in 1406, and the laboratory of which contains no less than 3,178 specifics compounded from herbs, plants, barks, berries and roots of Chinese vegetation. Eight allegations are made wherein the present law is claimed to violate constitutional rights. Dr. Curryear, secretary of the State board, reports that Dr. Sang was refused a license because of false representation to the clerk of Lake county, and that his application, being contradictory in itself, was also sufficient for turning him down.—[Dental Digest.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

REFORM IN DENTAL SOCIETIES.

VIRTUE is said to be its own reward; and in this fact we may see the hand of a kindly providence remunerating those who deserve recompense for their toil, and who at the hands of their fellows would otherwise go unpaid forever. Only about two-sevenths of the total number of dentists are said to belong to dental societies, and of this number we think fully one-half are inactive, leaving one dentist out of every seven to do the work by which all are benefited, and to whom the profession at large owes a debt of gratitude it never can repay. When we consider the fact that by far the greater part of the material published in our journals consists of papers read before dental societies and the discussions which these papers incite; when we notice that all helpful dental legislation has its inception in dental organizations, and is pushed to a successful issue by those who take an active part in dental society work, it seems as if those who do not lend their aid to the work must realize that they are reaping where they have not sown, and are daily being benefited by those to whom they make no adequate return.

These facts are being brought to the attention of the members of some of our societies, with the result that unusual progress is being made; the younger members are taking an active part in the proceedings, membership is increasing and much general good is being accomplished.

There seems to be a tendency to weed out the members who rarely attend meetings, and whose dues are always in

arrears, and place the management on a sound financial basis, of prompt payments, regular attendance and hearty co-operation. Such a course cannot be too highly commended, and the society whose officers have the pluck and perseverance necessary to so conduct its affairs is to be heartily congratulated, and its example should be emulated by similar organizations.

While we believe it to be the duty of every reputable dentist to belong to both his State and local organizations, we also believe it to be the duty of those societies to rid themselves of undesirable non-contributing, non-paying members. The able-bodied, prosperous man who has so little respect for himself or his profession as to allow his dues to become so far in arrears that he is liable to expulsion is certainly not worth carrying on the roll, or deserving of any consideration or respect from his fellows. If the example set him by his more generous and progressive brethren is not sufficient to stir him to greater effort for the benefit of his profession and himself, he is only worthy of the professional ostracism which his conduct merits and his own indifference brings upon him.

PERSONAL.

DR. C. DEICHMILLER of San Francisco left on March 2d with a mining party for the Alaska gold fields.

DRS. T. W. BROPHY of Chicago, W. C. Barrett of Buffalo, N. S. Hoff of Ann Arbor, as an appointed committee representing the National Association of Dental Faculties, arrived in San Francisco on Wednesday, March 2d. The principal purpose of the visit was to investigate the status of the Dental Department of the College of Physicians and Surgeons of San Francisco, it having made application to membership in the Association at its session held last August, and which, its Faculty gives assurance, desires in the fullest manner to meet the requirements of the Association. Owing to the visit being limited to a four days' stay, which was absorbed by its work, the associated pro-

fession had no opportunity of paying its respects to the committee in a manner worthy of its distinguished *personnel*. Dr. Brophy is one of the most eminent oral surgeons living, and is also dean of the Chicago College of Dental Surgery; Dr. Barrett is dean of the University of Buffalo Dental Department, and editor of the *Dental Practitioner and Advertiser*, one of the most forcefully edited journals, and Dr. Hoff is of the Faculty of the University of Michigan Dental Department. The gentlemen also availed themselves of the opportunity to visit personal friends at San Jose and Oakland, thence returning to their homes via Los Angeles.

NOTES.

THE American Medical Association holds its meeting for 1898 at Denver, Colo., commencing Tuesday, June 7th, continuing four days.

No. 3, Vol. I, of *The Indiana Dental Journal* has reached us, and we note that this latest addition to the roll of dental journals presents a pleasing and business-like appearance, is neatly made up, printed and bound, and evidences a useful addition to the literature of our profession. Clean, wide-awake journals, devoted to the best interests of dentistry, should always receive the patronage and encouragement of the profession, and such treatment we wish for the *Indiana Dental Journal*.

TO INTENDING CLINICIANS AND ESSAYISTS.

As the time approaches for holding the next meeting of the California State Dental Association, we would suggest that all those intending to contribute to the clinical or literary programme communicate at as early a date as possible with Dr. L. Van Orden, 14 Grant avenue, San Francisco, chairman of the Committee on Clinics, or Dr. F. L. Platt, room 85, Flood Building, San Francisco, chairman of the Programme Committee, advising them of the subjects they wish to present at the meeting of the Association to be held at San Jose, June 21st.

BOOK REVIEW.

"CATAPHORESIS," OR ELECTRICAL MEDICAMENTAL DIFFUSION AS APPLIED IN MEDICINE, SURGERY AND DENTISTRY. By William James Morton, M. D., Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital, etc.; 267 pp., with 76 illustrations. New York: American Technical Book Co., 45 Vesey street, publisher, 1898. Price, \$5.00.

In this work Dr. Morton has given to the profession for the first time a truly scientific and practical treatise on this important subject.

Beginning with its history and early development the subject is carried through successive chapters dealing with its relation to physics and physiology; and a consideration of necessary apparatus and outfit up to its application in medicine and general surgery, and its special application in dentistry; a final chapter being devoted to its application in microscopical work. The work is well illustrated, and handsomely printed on unusually heavy paper.

The subject of cataphoresis has received considerable attention during the past year, but its study by the profession at large has been rather spasmodic in its nature, and devoid of the results which more careful work might have produced.

Believing the subject to be an important one from which results of lasting good to the profession may be obtained, we heartily commend Dr. Morton's book to the careful consideration of the dental profession, feeling confident that he has so presented his subject as to make its further study, development and application possible to even the busiest practitioner, who from want of time has heretofore neglected to give the subject that attention it deserves.

MEETING NOTICE.

THE Illinois State Dental Society will hold its thirty-fourth annual meeting at Springfield, May 10-13, 1898. Dentists who are not members of the society, and dentists of other States are cordially invited to attend. Hotels and railroads will make the usual reductions. A large and profitable meeting is anticipated.

A. H. PECK, Secretary,
92 State street, Chicago.

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No. 4.

Original Papers.

TRIGEMINAL NEURALGIA.

BY H. G. CRAPPEL, D.D.S., OAKLAND, CAL.

[Read before the Oakland Dental Club, March 2, 1898.]

THE term neuralgia is from two Greek roots, meaning *nerve* and *pain*. Neuralgia may exist in any part of the body, and to make its location plain it is necessary to use a qualifying adjective when speaking of the disease; thus we call our subject "Trigeminal Neuralgia."

Gray defines neuralgia as "a functional affection of the sensory fibers of the peripheral nerves, which manifests itself by pain."

The pain may vary from a mild ache to a severe pain. It is paroxysmal and intermittent in its character. The paroxysms may be short in duration, or may last for days or even weeks. As a rule the intermissions are long, although the rule varies in this respect. It is usually a disease of adult life, and its victims are frequently neurotic or of neurotic stock.

Putzel claims that trigeminal neuralgia attacks females more than males. Out of 95 cases that came under his observation 71 were females, and 24 were males. Other authors state that it afflicts both sexes about equally. My experience confirms the latter.

The fifth nerve seems to be a favorite seat of neuralgia. The pain is generally confined to one or two nerve branches. It is generally of a severe type, most patients describing it as peculiarly harassing and unendurable. It may be boring, dragging, stabbing, burning, creeping, shock-like, etc.

NOTE.—The editors and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

In fact it seems capable of running the whole gamut of painful impressions.

One striking characteristic of neuralgia is its periodicity. No satisfactory explanation can be given for this. Another characteristic is the presence of painful spots, located where the nerve emerges from the bone, passes through an aponeurosis, or becomes superficial. These spots are called *puncta dolorosa*.

The disease may or may not present outward symptoms. Erysipelatous action sometimes takes place over the affected region, but is never severe. Pigmentation and roughening of the skin has also been noted, also change of color of hair along the course of affected nerves, when the disease has been of long duration.

During the paroxysms the face may be flushed, or it may be blanched, or again it may present no change from the normal.

Most authors mention two classes of trigeminal neuralgia, viz: simple neuralgia and tic-douloureux. The last named seems to be an intensification of the former, being more persistent and severe than simple neuralgia.

Its symptoms are: intense pain, lachrymation, flushing of the face, and rarely spasmodic action of the muscles supplied by the seventh nerve. Pain is the only constant symptom, the others may be absent.

The pain of tic-douloureux is more constant than in ordinary neuralgia, and the paroxysms are excited by the most trifling causes, such as exposure of the face to cold air, movements of the facial muscles or tongue, attempts to chew food, to drink, or to talk, and frequently they occur without any apparent exciting cause.

Some authors claim that neuralgia is a disease of itself, while others say that it is merely a symptom of disease that exists in some part of the system, which disease may be located near the seat of the pain, or in a remote part. Garretson speaks strongly on this point, claiming that there is some lesion as a cause for every neuralgia, the neuralgia being simply the expression of this lesion.

Among the causes of neuralgia mentioned by various investigators are: Heredity, gout, anemia, nervous excitement with consequent reaction, malnutrition, overwork, eye-strain, malaria, syphilis, hysteria, dental and antral diseases, genital irritation, neural tumors, trauma, influenza, toxic influences, kidney disease, and many others too numerous to mention.

Lloyd says that a number of the causes mentioned produce toxic conditions of the blood, and this poison acts as an irritant to the sensory neurons, thus producing the neuralgia. He says: "Considering the inveteracy and severity of the symptoms, it seems more than probable that the proximal or underlying cause must be some deeper-seated degenerative tendency of the neurons themselves." Again, he says: "Considering the peculiar onset and progress of tic-douloureux, I have long been led to believe that the irritative process, whatever it may be, whether inflammatory or more truly degenerative, has its seat, probably in the Gasserian ganglion, which is composed of the cell bodies of the sensory neurons of the fifth nerve. An irritative process having its origin in a small group of these sensory neurons would cause pain, which of course would be referred to the distribution of these neurons on the skin, or to the course of their irritated axis cylinder in the nerve trunk. Such a process would probably involve at the beginning only a small group of contiguous cells in the Gasserian ganglion. These contiguous cells would probably constitute a group sending their axis cylinders to one particular nerve trunk. This would account for the strictly local character of the pain at the commencement. As the irritative process advances, other cell groups would be involved, and thus gradually other nerve trunks would begin to transmit painful impressions. As the cell-bodies of the neurons (which are the nutritive centers) degenerated, the axis cylinders would also undergo destructive changes, according to the well-known law of degeneration. In the course of time proliferation of interstitial tissues in the nerve trunks would occur, and thus many of the appear-

ances of an inflammation might be presented. This practically is what has been found when a branch of the fifth nerve has been excised. Therefore, the mere fact of the presence of degenerative or inflammatory changes in the excised nerve, does not prove that the *initial* process was in that nerve, and not in the ganglion. The fact that cure or relief has been gained temporarily by excision of the nerve trunk can be explained on the supposition that the powerful impression made upon the neuron by totally abating its axis cylinder might for a time arrest the inflammatory or degenerative process in its cell body, or impair its transmitting power. But even admitting that all this supposition is unwarrantable, the fact remains that in almost all cases in which the affected nerve has been excised the disease process almost invariably passes in time to another nerve trunk, and this could only be by way of the Gasserian ganglion."

Neuralgia may be confounded with myalgia, osteoscopic pains of syphilis, cerebral anemia, neuritis, spinal irritation and pains of locomotor ataxia.

Prognosis.—A syphilitic neuralgia presents an excellent prognosis, while one due to tubercular cachexia almost always continues until death. In neuralgia due to anemia the prognosis is usually good. When due to heredity it may be cured, but it shows a strong tendency to relapse, and also to the transformation of the disease into other neuroses. In neuralgia of old age the prognosis is unfavorable. Sometimes a suicidal tendency develops as a result of trigeminal neuralgia; at other times there may be melancholia, but even when the neuralgia is cured the mental symptoms show a strong tendency to remain.

Treatment.—The treatment of neuralgia may be medical or surgical. We will discuss the medical first, and I will divide this into parts—allopathic and homeopathic, for both schools have met with more or less success in their efforts to combat this disease.

The first thing to do, of course, is to relieve it temporarily, which can be done by a number of anodynes, but

morphia seems to hold first place. The best effects are obtained by giving about 1-12 grain three or four times a day. Having relieved the pain, search carefully for the cause, and when found remove as speedily as possible. When the neuralgia is caused by syphilis or scrofulosis, treat by the specific remedies for these diseases, controlling the various symptoms by appropriate palliatives.

If anemia is the cause, use tonics, iron and arsenic, and possibly cod liver oil and the bitter tonics, and thus rid the patient of the cause. Nux vomica and strychnine are sometimes used with good effect in this condition. Strychnia is a nerve stimulant and also a stimulant of the anterior columns of the spinal cord.

When the disease is caused by nervous exhaustion, phosphorus is recommended, especially when convalescing from acute fevers.

Malarial poisoning may cause supra-orbital neuralgia (commonly called brow-ache). This is relieved by large doses of quinine. Cannabis indica has been highly recommended for neuralgic affections, but its intoxicating effect on the brain is much against it.

Belladonna and its alkaloid, atropine, have been used with more or less success.

Nitro-glycerine in doses of 1-100 gr. is sometimes used with good effect.

Aconitine in doses of from 1-250 gr. to 1-200 gr. is also useful in some cases.

Croton chloral is of service, especially when combined with small repeated doses of morphia.

Antipyrin in doses of from 5 to 20 grs.; acetanilid and phenacetin in doses of from 3 to 8 grs., and antikamnia in doses of from 3 to 10 grs. are also used; but their effects are almost too evanescent, and their continuous use has an injurious effect on nutrition, tending to produce anemia.

Cocaine by injection is an efficient drug to relieve the pain; but it is a seductive drug, and the patient soon comes to rely on it. Both morphia and cocaine must be used

very cautiously, as there is danger that your patient may be made a slave to one or the other of these drugs.

Local applications are sometimes comforting. Ice put in a rubber bag and properly protected by several thicknesses of flannel will sometimes exert a sedative effect, while at other times warm or hot applications are useful.

Sedative and anodyne liniments, such as chloral and camphor, or those containing chloroform and aconite, are sometimes useful, but at other times are very disappointing.

Electricity, especially the constant current, is useful at times. Cataphoresis has been employed with some success. The best drugs for this are cocaine, chloroform and tincture of aconite.

In homeopathic treatment the drug used for any given case depends entirely upon the symptoms.

In supra-orbital neuralgia, caused by exposure to cold winds, when the affected part shows congestion, aconite 3.x. is used internally, and sometimes the tincture is applied locally.

In infra-orbital neuralgia, when pain is excited by rubbing the affected part, darting pains felt in the malar vicinity, nose and jaws, eyes water, heat and redness of the face, the pain comes in paroxysms, suddenly disappears and as suddenly returns, is worse from motion, light, jarring or lying down. Then give belladonna. The right side is generally affected when this drug is indicated.

Mr. N. came to my office, saying that he wished to have a tooth extracted, as he was suffering from neuralgia. I examined mouth and found teeth in good condition. On the right side (location of pain) the first and second superior molars had been extracted, and in that region there was a slight redness of the parts, but I could find no evidence of any remaining roots. The pains seemed to shoot all through the bone and were greatly aggravated by jarring. The man is a carpenter, and stated that the jarring of the body consequent on driving a nail would invariably bring on a paroxysm of pain, so that he had been obliged to leave his work. I prescribed belladonna 3.x. in liquid

form, one-drop doses, in warm water, every fifteen minutes. In from one to two hours the pain had entirely disappeared. About two months later slight pains were felt in that region; the same remedy was administered, and no further trouble has been experienced. This occurred about six months ago.

Bryonia alba is given when there are pains along the course of the inferior dental nerve extending to the ear, when hot drinks irritate and cold water soothes.

Mezereum for infra- or supra-orbital neuralgia of the left side, worse from warmth. The pain leaves a numbness. I have used this remedy with good effect.

Spigelia is another useful remedy for infra-orbital neuralgia.

Mr. B. came to the office saying that he had suffered from neuralgia for about a month; had taken morphia and neuralgia pills, but could only obtain temporary relief. The case presented pains along the course of the right inferior dental nerve, extending to the ear, also to the cheek, and when the paroxysms came on (which they would do upon any exciting cause, or with no apparent cause,) there would be flushing of the cheek and lachrymation on the affected side. Upon examination of the mouth a number of carious teeth were found, any one of which might be the irritating cause. Being unable to attend to his teeth just then, I prescribed belladonna, as it seemed to answer the symptoms better than any other remedy with which I was acquainted, but the next morning he was back again, saying that he had experienced but little relief. I then administered *spigelia*, and in the course of about two hours the pains began to die away, and in a day or two were entirely gone. Unless patient has teeth attended to and put in proper condition I look for a return of the neuralgia, as I believe the carious teeth to be the cause.

There are many other remedies used for this affection, but these few will suffice to show that here is a field that will bear investigation by all who earnestly desire to alleviate human pain and misery.

Surgical Treatment.—We will now turn our attention to the surgical treatment of neuralgia, which seems to be the only successful method in some cases.

Nerve excision and nerve stretching have been employed, and during late years the complete removal of the Gasserian ganglion has been tried. In cases where medical treatment has failed, and the pain is limited to one branch, an excision of that branch may be tried. (For mode of operating, see any standard work on surgery.) Excision of the nerve may be followed by very gratifying temporary results, but it is seldom that a permanent cure is obtained in this way. The disease shows a tendency to spread to some other branch, but the fact that it does so is not a contra-indication for the performance of this operation, for a period of relief may be gained that varies from a few months to a year or two, and this is well worth the cost and inconvenience of the operation, and it is possible that a complete cure may be effected.

In cases in which the greatest intensity of pain seems to be located in one nerve trunk, but radiates from that one with less intensity to others, an operation on that particular nerve will probably do no good.

Stretching the nerve has in some cases been attended with good results. The tension exerted probably disrupts the fibers, and therefore practically amounts to the same thing as excision.

J. F. Walsh records a case of nerve stretching as follows: "The patient was a woman, aged 26, suffering from tic-douloureux, limited to the lingual branch of the fifth nerve. An incision was made on the side of the tongue, the nerve exposed and dissected out of its bed. A weight of four pounds was applied to it for five minutes. The pain ceased entirely for three days and then reappeared. A few days later the nerve was again exposed and a weight of eight pounds applied for two minutes, when it was reduced to four pounds, which was continued for three minutes. The fibers of the nerve showed evidence of the tension. Pain

now ceased and had not reappeared at the end of seven years."

In severe neuralgia involving several branches of the fifth nerve, when medical treatment has failed, the only radical treatment is the complete removal of the Gasserian ganglion. It is a severe and heroic remedy, but, considering the gravity of these cases, it is perfectly justifiable if all its risks are fully explained to the patient and his friends.

What is known as the Hartley-Krause operation is considered one of the best methods of reaching the ganglion. The points of advantage claimed for it are: First, smaller mortality due to the possibility of more complete asepsis; second, access to the ganglion is by a large opening; third, the entire ganglion with its roots can be removed.

The operation is described as follows: An osteo-plastic flap, shaped like a horseshoe, is made in the temporal region. This is turned down, and the temporo-sphenoidal lobe is lifted from the middle fossæ of the skull by the forefinger, the brain and its membranes being held up by a broad spatula. The ganglion is thus reached and ablated.

The dangers and difficulties of the operation consist especially, first, in hemorrhage from the middle meningeal artery, and the vessels running in the dura-mater, which require to be torn away in order to expose the ganglion; second, in securing and removing the whole of the ganglion.

In some of the cases operated upon the ganglion has not been entirely removed, but has simply been broken up. It is necessary that we take this into account when reviewing the results of any operation on the ganglion, as it is probable that the recurrence or non-recurrence of the pain will depend largely upon whether the ganglion was removed entirely or merely broken up.

One of the results of the operation, and one to be feared, is destruction of the cornea, as this is not an infrequent result of disease or injury of the fifth nerve. Keen claims that there is little danger of this, but in one of his cases a corneal ulcer resulted. The first operation by Rose resulted

in the loss of the eye. The results of Keen's operations were as follows :

"Case I.—Gasserian ganglion was broken up. There had been thirteen prior operations on various branches of the fifth nerve. Patient was cured for twenty-six months, when he had a return of slight temporary twinges of pain.

"Case II.—Gasserian ganglion broken up. Had been eight previous operations on branches of fifth nerve. Cure for eighteen months ; slight return of pain.

"Case III.—Had been two prior operations on branches of fifth nerve. Gasserian ganglion was broken up. Death resulted from septic meningitis.

"Case IV.—Gasserian ganglion broken up. Had been five prior operations on branches of fifth nerve. Cure resulted for seven months, as far as reported. There was necrosis of bone in the flap.

"Case V.—Gasserian ganglion broken up. Two prior operations on branches of fifth nerve. Cure resulted for two months, as far as reported.

"Case VI.—Gasserian ganglion was removed entire with second and third divisions, and its sensory and motor roots back to the pons. Had been four prior operations on branches of the fifth nerve. Cure complete. Reported a few weeks after operation."

Doyen has recommended a mode of operating which he claims makes the removal of the entire ganglion easier than in the Hartley-Krause method. His method consists in the resection of a portion of the bone covering the temporal fossa, and of part of the greater wing of the sphenoid. On the score of mortality this operation has much against it. Three cases were reported. In one of these complete cure persisted for two and a half years, but in the other two cases death resulted.

Fortunately, but few cases call for the extreme surgical procedure of entire removal of the ganglion, and it is possible that as we become more enlightened on this subject we may be able to combat the disease in such a way as to make their number less, and thus confer a blessing upon humanity.

IMMUNITY FROM SYPHILIS.

BY CORYDON B. ROOT, M.D., D.D.S., SAN FRANCISCO, CAL.

[An address before the Stomatological Club of California, February 3 1898.]

THE proposition of rendering an individual immune from certain diseases has in the past few years become an exceedingly important question in medical science. So interesting is this subject that I venture a few remarks bearing upon this immunity, confining myself, however, to its application or adaptation to syphilis, and will try to give some evidence to show that theoretically syphilis presents as favorable a field, or approximately as favorable a field, for obtaining immunity as did smallpox. I say theoretically because the *modus operandi*—the method of obtaining immunity from syphilis—has yet to be discovered, and my remarks are therefore necessarily theoretical. But if we look over the history of this disease and follow the course which it has taken among the different nations the proposition of immunity becomes exceedingly prominent.

It is a fact that in certain localities syphilis has been known to assume a type, and the cases occurring in any of these given localities have stuck pretty closely to that type. For instance, it is but recently that I heard that syphilis has occurred among some of the South Sea islands almost in epidemic form. In this case there was a tendency of the disease to assume a type, taking on hypertrophic forms; often the natives afflicted with the disease suffered from elephantiac hypertrophies. In other localities it has been known to resemble leprosy; and so close has been this resemblance, and so constant that writers have endeavored to connect these two diseases, syphilis and leprosy, as essentially (that is to say, as etiologically,) the same disease. I mention one or two of these facts in order to show that the course of syphilis is changed by circumstances independent of medication.

In order to bring out that point a little more thoroughly, and also to introduce the proposition of immunity, I will say that among certain nations syphilis has taken a very

mild and benign form, while among other nations the course which it ran was so severe and the type which it assumed was so malignant as to be almost as a visitation of a plague.

If, for example, we take the case of the Hawaiian Islanders we find that previous to the time of Captain Cook in his early voyages syphilis was unknown to them. It was introduced to these people by Cook's sailors, and it proved to be a fertile field, for, owing to the lax morality of the natives, the disease spread with great rapidity, and it assumed a very severe and malignant type. So serious were its attacks that scientists are agreed that this disease was one of the causes of the great depopulation of the Hawaiian Islands.

If, on the other hand, we investigate among the Chinese we find that the natives of that country are saturated with syphilis. The mode of life of the Orientals, their unhygienic surroundings and crowded conditions being especially favorable for the spread of this disease. They receive the attack of syphilis, however, in an exceedingly mild and benign form, and even where the cases are absolutely neglected spontaneous cures are unusually frequent. This immunity of the Chinese, or, more properly, a relative immunity, is due to the protection afforded by previous race infection, and I believe they must have had a pretty thorough time of it, for they have discovered Chinese manuscripts nearly two thousand years old which quite accurately describe characteristic phases occurring in this disease.

In Hindostan there are evidences of the great antiquity of syphilis. A few years ago it was said to be diminishing in frequency, due, no doubt, to the improved hygienic measures adopted by the British. Since the repeal of the contagious-disease act, and more particularly in the last year, syphilis has been spreading with great rapidity, and it is said that fully 30 per cent. of the British army in India are syphilitics.

Writers on this subject in Japan have stated that it seems almost impossible to find an adult male Japanese absolutely

free from sign of syphilis, either hereditary or acquired. This statement however is undoubtedly exaggerated.

In all these Oriental countries it is noticeable that the attack of syphilis occurs in a mild and benign form, which affords a very striking contrast to the severity of its occurrence among the Hawaiians.

The history of syphilis in South America presents a parallel case with that of the Hawaiian Islands. Being introduced into that country at a comparatively recent date by members of the white population, it soon became widespread and assumed a very malignant type.

In Spain and Portugal this disease seems to be almost universal. In France it is very common, particularly in the larger cities. It is a fact that as we leave the large cities and come to the rural districts the rarer this disease becomes. While it is true that syphilis is universal in its attacks upon classes, sparing neither the highest nor the lowest, still, in common with other diseases of its class, it prefers the crowded, unhygienic and immoral surroundings of the tenements.

It is well known that one attack of syphilis will protect an individual from subsequent attacks during his lifetime, that is, as a rule, no matter how frequently he may be exposed to fresh sources of infection. This is independent of whether the individual has been cured or not.

Now all of this is evidence showing that there is an immunity from syphilis. In the case of nations having a strong history of previous race infection there is a relative immunity. In the case of individuals who have acquired the disease there is an absolute immunity.

As to any experiments that may have been conducted for the purpose of rendering healthy, non-syphilitic individuals free from the possibility of contamination from this disease, I have not been able to learn just what has been attempted or what has been accomplished. It is said that recent cases of syphilis have been treated by the sterilized blood serum of syphilitics, and that quite favorable results have come from this mode of treatment.

If this immunity from syphilis could be discovered it would not be necessary to render the world immune from this disease in order to gain practical results, as is necessary in vaccination from smallpox, for, when we come to consider that the great cause for the spread of syphilis is prostitution, there is an opportunity of striking at the base of the evil, as it were. If prostitutes could be rendered immune from this disease fully sixty to seventy per cent. of the cases which we now meet would be done away with, and such a result would surely be a godsend.

Judging from what may be adduced at this time I see no reason why the future should give us not only immunity from syphilis, but from other kindred diseases. So I believe that men of science should be encouraged in an endeavor to free the human race from this foe, for the discoveries of the future will be as brilliant and as revolutionary as those of the past.

THE VALUE OF INTERROGATION.

BY FRANK L. PLATT, D.D.S., SAN FRANCISCO, CAL.

[Read before the San Francisco Dental Association, January 10, 1898.]

ONE of the leading objects of modern education should be that of teaching people to think, and to think intelligently. The study of mathematics, for this reason, should be encouraged, and under a good instructor there is probably no other line of study which will so freely develop the reasoning power. But the ability to reason from effect to cause, marks the true value of the student in any science.

He who follows in the footsteps of others, simply because footprints have been left in which he may place his feet, is but a servile imitator of those who have preceded him, lacking at once in certainty, originality of purpose, fertility of resource, and all the qualifications which constitute true success.

The failure of education to develop this reasoning faculty is due in the majority of cases to a lack of interroga-

tion. The student who, when asked why he does a certain thing in a particular manner, replies, "My teacher told me to do it that way," gives an answer which should bring forth pity for the student and condemnation for his teacher. He should know the reason WHY, and *why* that is the reason; a consummation to be reached only by continued and oft-repeated interrogation.

A question in itself may be one of the simplest things imaginable, but the ultimate value of it as a producer of results may be almost incalculable.

The answer to questions constitute the pith and point of all the knowledge of the world; but the questions preceded the answers, and all progress has for its initial starting point an interrogation mark.

Life begins and ends just there. What is life? What comes after death?

Children know instinctively the value of interrogation, as is shown by their great ingenuity in asking questions; and it would speak volumes for our knowledge if we were able always to answer their questions cheerfully and logically; and we would be more careful of our own statements if we oftener asked ourselves to what questions they might lead. The mother who told her son that God could do anything, would not have made such a statement had she foreseen that the young man would immediately ask her "Well, if God can do anything, could he make a three-year-old colt in fifteen minutes?"

We all possess within ourselves a fund of inquisitiveness that in most cases may well be represented by a large interrogation point; we want to know; our desire to find out something, no matter what, constitutes the long-felt want that students and teachers, workers and demonstrators are continually trying to fill.

Only the careless, the foolhardy or the reckless take a step in any direction without mentally questioning themselves in regard to its expediency. Lawyers and statesmen, philosophers and story-tellers have often made their strongest points by simply asking a question.

The United States senator who asked "Where are we at?" had his reputation established at once.

The author of the story entitled "The Lady or the Tiger?" knew full well the value of the question with which he closed that charming narrative. All the force of the story lies in its closing sentence.

You may not have stopped to think of it, but it seems to me most of the people we meet are simply animated interrogation points. Not so much because of the questions they ask as of the questions they suggest to us.

There is nothing in the world which does not give rise to a question: the trees and stones; the streams and passing clouds all excite our curiosity, and lead us to ask what they are, whence they came, why they exist; and all the splendid array of natural sciences may trace their origin back to the questions thus asked.

It seemed to me better not to bring dentistry into discussion this evening, so we might have a little recreation and jolt for a few minutes out of the ordinary rut in which so many of us run; but the subject must be brought briefly home to us.

Let us stop and think how many mistakes might be avoided; how much better our work might be done, how much we might teach ourselves, if we only stopped at each successive step in our procedures and asked the questions "Why do I do that?" "Why do I use this?" "What will improve my present method?" It would be a new education for most of us.

The subject of this paper seemed small in the beginning and easy to handle, but with each minute's thought placed upon it, it has grown in immensity until it has far outstripped the limits of a brief evening's discourse. That we may all be led to think and interrogate is my purpose in writing this. The value of interrogation can be measured only by the value of all the world contains.

Selections.

THE INFLUENCE AND POWER OF ASSOCIATION.

BY J. TAFT, D.D.S., CINCINNATI, OHIO.

[Read before the Odontographic Society of Chicago, February 21, 1886.]

THE world is moved by association. While it is true that some things have been accomplished by individual effort, it is equally true that the great movements of the world have been carried on by a union of forces, even in the most simple callings of life. People associate themselves for the accomplishment of their proposed objects. This is true of those in professions as well as in other callings and occupations. Religious as well as secular workers and thinkers throughout the world have their organizations. Physicians of all schools and specialties have brought this means of improvement and usefulness to a very high state of activity. Dentists not less than any others have brought into operation, tested and proved the benefits and value of co-operation.

Dental societies began to be formed about fifty-eight years ago. The first step in this direction was in the establishment of the pioneer organization, the American Society of Dental Surgeons. Though two attempts prior to this were made, they were not successful. The American Association of Dental Surgeons was the first of any special importance. This organization had a varied career of about sixteen years when it disbanded. The Virginia Association of Dental Surgery was formed December 12, 1842; the Mississippi Valley Association of Dental Surgery, August 13, 1844; the Pennsylvania Association of Dental Surgery, December 14, 1845; the Society of Dental Surgery of the State of New York, November 17, 1847; the American Dental Convention, August 2, 1855, and the American Dental Association in 1859. From that time onward State associations have been organized until every State and Territory in the Union, with possibly one or two exceptions, has its State dental society, and each city of a few thousand in-

habitants or more can boast of its dental society, and some of the larger cities have two or three organizations. So great is the importance of association work now regarded that no one of any reasonable professional ambition can and aloof from or refuse participation in it.

Association work is being utilized by dentists in a higher degree than in any other profession. There are three organizations of a national character, viz.:

1. The National Dental Association.
2. The National Association of Dental Faculties.
3. The National Association of Dental Examining Boards.

The special work of these need not be specified here. In addition to these there are four district associations, which are so distributed as to embrace the entire United States, and are directly auxiliary to the national society. Then comes the State societies as above specified, and in addition to these the societies of still more local character, namely, those of cities and larger towns and some country districts. While the work of each of these organizations have some objects in common, yet each has some special work for its object. All alike are interested and engaged in the promulgation of the science of the profession, yet there are specific phases of the work that fall to the individual bodies that it is not feasible for others to assume.

The national society has an outlook over the whole field of the profession in this country, and should suggest, and aid so far as possible, association work throughout the whole profession. It also with propriety may and should suggest and devise in regard to the educational work of the profession. It should also deal with all questions of the profession of a general and national character.

The four district societies are immediately auxiliary to the national, and in addition to scientific work may take up and deal with more practical matters, adapting their work more particularly to the needs of that part of the country where they are located.

Every State has its special society. The work of each

should embrace as much of scientific and practical matters as possible. In addition to this it should have cognizance of and guide so far as it may the dental legislation of its own State, and see that the laws are executed and that they accomplish the wise purpose for which they were enacted. This is a work devolving solely upon the State societies, thus maintaining a good professional standard in every portion of our country.

Every State should have an interest in the educational work of our profession, and may properly make suggestions in regard to it. A large portion of the States have one or more colleges, and the interest of these is so outreaching that it should enlist the interest and the consideration of all bodies whose influence might be helpful.

Associations still more local in character than those just mentioned—namely, those of large and small cities—have their functions in the main in the development of the science and art of the profession. This is done by the presentation and discussion of subjects through papers and addresses with clinical work, which may embrace all the operations and processes in practical dentistry. Formerly it was thought to be impracticable to combine the scientific and practical or clinical work in one meeting. This, however, by the recent development is shown to be incorrect. It has been found, as is demonstrated on this occasion, that the study of the science of the profession and its application in practical work are not incompatible, even though presented on the same occasion. In this respect the dental profession in its association work has outstripped any other profession. The medical profession does not to any extent attempt practical work. There is nowhere presented outside of the dental profession an equivalent to the practical work done in our clinics.

The first presentation of clinics in our profession was made about the year 1859 in the Indiana State Dental Society at Indianapolis. The late Dr. William H. Atkinson, of New York, and Dr. P. G. C. Hunt were the active workers in this, one of the first public clinics. This mode of

instruction in our profession is one of rapidly increasing utility. It is the means by which every new and available device and invention is brought to the attention of the profession, so that the attainments in the profession are made a common possession of all who will receive.

In the past the question has often been asked, what benefit is to accrue from attendance on dental societies? The statements already made will somewhat answer this question, but there are other advantages that may be named; of these, the social feature is not one of the least. Before associations were much in vogue, members of the profession stood apart; they were isolated, little or no fraternal communication, noncommunicative, absolutely reticent in regard to their methods and modes of work. In many instances a marked hostility existed. There were, of course, a few exceptions; but fifty years ago the condition here indicated was the rule; dentists were suspicious of each other and stood antagonistic. By association this condition has been cleared away, and now a vestige of it scarcely anywhere exists, indeed does not at all exist, except outside of association influence.

A broader knowledge always promotes a higher standard of professional character. As a result of broader attainments and broader views objectionable methods and practices are avoided and ignored.

Another influence exercised by association is that upon the literature of our profession. Almost the entire periodical literature comes from these organizations. Very little is produced by others than the membership of societies. A record of the proceedings of these bodies finds its way to our journals, so that association exercises wholesome influence over not only the journalistic, but the textual literature of our profession. Indeed our literature would have been meager but for the influence of associations. They have in some sort exercised a censorship over it. Every one in the country engaged in journalistic work is a member of some association. All the educational work of our profession feels the influence in a very marked degree of

dental association. No dental college could afford to ignore this influence, no dental school could exist and prosper with the influence of association in opposition to it.

For the position and status enjoyed by the dentists of the country we are indebted to dental societies, and largely to State societies.—[Dental Review.

THE PRINCIPLES OF DENTISTRY.

It is frequently asserted that dentistry has attained such dimensions that it is out of the power of any one man to become master of it in all its departments. The mode of making the assertion savors more of an apology for neglect to cultivate the several aspects of his calling, than of a desire to exalt dentistry.

That dentistry has assumed magnificent proportions any one must admit who is familiar with its contemporary scope; but that it should be subdivided into distinct specialties, after the manner of the mother science, general surgery, is a slur upon the intelligence, industry and ingenuity of its followers. It would be about as natural as having ophthalmologists divide themselves into operators upon cataract, operators upon strabismus, and correctors of errors in refraction. Such a view is narrowing—too narrowing to be seriously considered in point of adoption. The source of the trouble, for a trouble does underlie this desire, resides in a general failure of dentistry to reduce apparently complex problems into their simpler and fundamental elements—i. e., a failure to recognize basal principles.

To take one of these subjects, that of filling teeth, it may be expanded to any extent, until there are specialists in filling with soft foil, with cohesive foil, with rolled gold, crystal gold, and so on; or again, specialists in plastic fillings; those who fill approximal cavities; those who fill subgingival cavities; root-fillers, pulp-cappers, and the list might fill pages; and yet underlying all of the apparent complexities there lie a few simple principles, which, if applied by the operator, with a type of skill applicable to all,

there is no reason whatever why a man should not be adept in all of them. The same applies with equal force to the fields of prosthetic dentistry, and the practice of dental surgery proper. It is freely considered by nearly everyone that the original method of instructing pupils in private laboratories and offices possessed advantages over instruction in classes. The time is approaching when the advantages offered through such methods will have the good features extracted and the ill features done away with; the future students will derive all of the benefits arising from personal instruction without being saddled with the results of personal crochets of his teacher; and this will be brought about by resolving dental technology into basal elements, into fixed principles upon which dental operations will be performed.

The operations of dentistry, in the chair and in the laboratory, are no more a pure art than many technical callings, and are as much scientific as other phases of engineering, and should be arranged in consonance with kindred technology; it is done with other branches of human ingenuity, and it is inevitable that sooner or later dentistry must subscribe to similar standards, must make part of the great world of industry rather than constitute itself a world in itself. It has been said that dentistry cannot be learned in ten years. Very true; but medicine cannot be learned in thirty; and yet the principles of either may be learned in but few years; that they are not in some instances learned in a lifetime is no contradiction.

There are a few fundamental principles that underlie all cavity preparation, a few upon which the filling of such cavities is accomplished; so with orthodontia, with every phase of dental prosthesis. The principles underlying the treatment of dental diseases are the same as those underlying the treatment of other surgical affections, modified by peculiarities of local anatomy. Confusion in all of these directions only arises when attempts are made to proceed in dental practice without due regard to the relations of the operation. Complexity may be made of anything, and,

contrawise, simplicity underlies everything if efforts are made to resolve things into their simpler elements. The first step in this direction is a recognition of basal principles. Indeed, dentistry cannot justly claim a position among the learned professions unless it does show a basal scientific reason for its procedures, to which the general scientist can assent.—[H. H. B., in *The Stomatologist*.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, MARCH 8, 1898.

CLINIC.—Dr. Russell H. Cool. Extraction of right lateral incisor, placing crown of extracted tooth on alien root; forming artificial alveolus and implanting.

CLINIC.—Dr. Max Sichel. Cement experiments.

CLINIC.—Dr. A. F. Merriman Jr. Gold filling of right superior second molar, crown cavity. Non-cohesive and cohesive method combined.

DISCUSSION.—DR. MERRIMAN'S CLINIC.

Dr. A. F. Merriman Jr.—I was requested to insert a gold filling in a median cavity, as small gold fillings have seldom been presented here. The method I presented was a combination of cohesive and non-cohesive gold in finishing. I rolled Williams cylinders somewhat harder than we receive them, placing and wedging them in the cavity, and mechanically inserted cohesive gold. While the cylinders are somewhat soft we can mechanically place a strip of No. 30 foil and combine the two. The entire operation is done in shorter time and has merits not found in such cavities where cohesive gold is used exclusively.

Dr. Frank C. Pague.—The working of non-cohesive and cohesive gold together is a novel idea to me. The method of placing pellet after pellet till the cavity is well filled and then wedging from the center towards the lateral walls and then inserting more gold makes a filling, to my mind, beyond criticism.

DISCUSSION—DR. COOL'S CLINIC.

Dr. R. H. Cool.—The case presented came to me about three years ago, with every tooth in the mouth loosened. The lateral had dropped down more than one-third. There was no attachment to speak of. Two years ago I extracted it, removed the pulp, cleansed and replanted the tooth. It lasted until two weeks ago, when he was either struck or had bit something hard. The entire labial plate was destroyed and the only attachment was on the posterior lingual surface. I extracted the tooth, amputated the root, placed crown on alien root, and, after making an artificial alveolus, implanted it. I used a long, slender root, and after placing it in the artificial alveolus, I cut into the palatine process and ligated the implanted tooth with Carlson-Currier silk "A." I use a local anesthetic of cocaine.

Dr. C. B. Root.—How far down on the labial plate did the new root extend?

Dr. Cool.—About one-third. The gum tissue took about another one-third. At a subsequent operation I will reproduce that lost tissue. If you noticed when I was cutting that bone there was a peculiar sound, not like cutting the bone of a healthy person. There was a rasping noise, just as if the bone was crisp. I don't think I ever cut as far into the palatine process as I did today.

Dr. Merriman Jr.—In trephining to get the new socket, did the trephine take off enough process to get healthy granulation?

Dr. Cool.—I did that purposely. My treatment of this case will be aseptic washes, such as sulpho-naphthol and pyrozone, and the injection of lactic acid until there is union, when I will operate on the gum.

Dr. Pague.—Whether nature will stand by the clinician and do what he expects remains to be seen. I think the idea of taking the crown from the extracted tooth, rather than an entire new tooth, and jointing the natural crown to the alien root a splendid procedure. He cut the crown and root sort of V-shape, so that one virtually wedged into the other, making the crown more secure.

Dr. Merriman Jr.—True implantation is certainly easier than the operation performed here today. It was a complicated operation, having disease to combat, and part of the alveolus gone. Placing the crown on an alien root is better than getting a suitable tooth to implant.

Dr. Root.—I never witnessed a clinic that afforded me the same pleasure. The tissues were weakened by disease and any strong antiseptic would interfere with the healing of the tooth in the socket. All the antiseptics used were of a mild character. The first operation I attempted of that kind was a lateral incisor where I neglected to preserve sufficiently thick labial plate. The tooth remained in place for two years and failed. The operation today was remarkable in the fact that the patient showed so few signs of pain. In drilling out the bony socket, pain may be relieved to some degree by dipping the instrument in cocaine. The friction of the instrument will rub cocaine into the painful areas. Then the cocaine can be washed out. It was the first time I had seen ligatures used for the retention of an implanted tooth, and to one not accustomed to their use it was a revelation. They have the advantage of cleanliness, are not so easily observed, and one can watch how case is progressing better than if gold bands, etc., are used. The V-shaped crown is not only to wedge the two together, as Dr. Pague observed, but also to serve as a band so that the root will not split.

Dr. Pague.—Inasmuch as the labial wall was entirely destroyed, and it was necessary to make an entire new socket, and the distance between the labial and palatine wall so thin, instead of placing that crown on a straight line, if it could be placed at a slight angle, tipping the crown lingually as it were, and drilling an artificial socket in a palatine direction, wouldn't it be easier to get a firm hold?

Dr. Cool.—That's just what I did.

MEETING OF TUESDAY, MARCH 15, 1898.

CLINIC.—Dr. J. A. W. Lundborg. Pure gold inlay filling.

EXHIBIT.—Dr. Russell H. Cool. Large amalgam contour filling.

DISCUSSION—DR. LUNDBORG'S CLINIC.

Dr. Lundborg.—The operation which I performed this afternoon consisted in preparing a large compound disto-occlusal cavity in the right superior first molar, and inserting a pure gold plate inlay. The gold was burnished into position without any wedging, and allowed to extend over all the margins of the cavity. I use gold plate of about 32 or 33 gauge. After this is burnished into position, I remove from mouth and solder retention spuds of thin platinum on side of inlay facing the cavity, at the same time reinforcing inlay with 20 k. gold solder in order to enable it to withstand force of mastication. This also allows the inlay to be ground in case of necessity of relieving the bite. I have the greatest confidence in the permanency of this method, as I have been placing them in position for the last year and a half, and have had an opportunity of practically testing their excellent wearing properties.

Dr. Merriman Jr.—I believe that in certain difficult cavities where approximal walls are broken away that it is advisable to perform in the manner which the Doctor advises.

Dr. Root.—This method of Dr. Lundborg's is the quickest, simplest and most artistic of all the gold inlay work which I have ever seen. Of course the weak point is the cervical margin of the cavity, but by allowing the gold plate to extend over this and beneath the edge of the gum, below the line of caries protected this weak point as thoroughly as portions of the cavity. The gold also lapped over the buccal and lingual edges of the cavity, thus gaining a self-cleansing surface of metal without necessitating the chiseling away of these margins.

Dr. R. H. Cool.—To be candid, I have to confess that this clinic is an innovation. There is a certain class of cavities which dentistry has been unable to cope with satisfactorily. If it happens that the patient is unable to

sit for a considerable length of time, undergoing a dental operation, on account of nervousness, or if tooth is too frail to use any considerable force, then our present methods have been hitherto insufficient. Cement is not durable, amalgam is unsightly; consequently we have been all at sea until the Doctor has demonstrated his method this afternoon. While it is true that it is no "cure-all," and cannot be used in every case, yet it is the best method which we have for treating many cavities, and will occupy a prominent position in dentistry. As a first proceeding the Doctor varnished the cavity with aristol and ether. I have found it desirable to combine with this gutta-percha, thus giving a preparation possessing the hardening and antiseptic properties of aristol and the non-conducting properties of gutta-percha. I believe it would be a good idea to fix cervical margin of inlay in place with a separator until after the cement has crystallized, as the expansion of cement during hardening might displace the inlay from this position. The pure gold obtained from the dental depots is only 23 and-a-fraction karats fine. Gold fillings melted down would give us a gold which is preferable.

Dr Lundborg.—I melt pure gold which has been used for fillings and roll out. As regards the cervical margins, I have a very thin spatula which I pass between the teeth.

A resolution was adopted empowering the President of the Club to take such action as in his judgment seemed proper toward securing the payment of delinquent dues.

MEETING OF TUESDAY, MARCH 22, 1898.

CLINIC. Dr. Russell H. Cool. Banding of broken down molar with German silver soldering and using same as matrix in inserting an amalgam filling. Band matrix to be removed from tooth after twenty-four hours.

EXHIBIT. Dr. C. B. Root. Patient with pure gold-plate inlay in right superior second bicuspid (Dr. Lundborg's method).

There being no evening session there was no discussion.

MEETING OF TUESDAY, MARCH 29, 1898.

DEMONSTRATIONS OF USE OF MATRIX.—(a) By Dr. S. E. Knowles. An original method of preparing a German silver band and ligaturing same on tooth, forming a perfect matrix. Also demonstrating the use of a set of pluggers of his own design for packing gold against margins of cavity while using matrix.

(b) Russell H. Cool shaped and soldered a band of German silver to tooth to be used as a matrix for amalgam work, band to be removed after twenty-four hours. This allows the amalgam to harden in the matrix and prevents displacement at cavity margins by expansion, etc.; also gives an edge strength to the amalgam, which cannot be obtained by any other method.

(c) Dr. A. F. Merriman Jr. showed how to use a thin polishing strip of metal as a matrix by holding in place with the fingers of left hand while packing plastic filling. To be used where difficulty is encountered in placing a retention matrix or in a child's mouth.

No evening session and no discussion.

SAN FRANCISCO DENTAL ASSOCIATION.

At the April meeting of the Association, no clinician having been named at previous meeting, Dr. F. L. Platt volunteered a clinic and placed a natural inlay, and also a restoration contour gold filling, showing the use of Morgan, Hastings & Co.'s gold foils.

A good attendance was had at the evening session, and immediately after the reading of the minutes President Platt appointed Drs. M. V. Crowell, H. D. Noble and B. C. Boeseke as the Literary Committee, and Drs. R. E. O'Connell, Mae Macdonald and C. P. Hauselt the Committee on Clinics.

Two new applications for membership were received and referred.

A motion prevailed that the Recording Secretary shall hereafter be paid \$3.00 per month.

The Secretary was empowered to employ a collector to assist in collecting dues from members who are six months in arrears. Those owing for one year or more were granted thirty days in which to settle; otherwise they will be dropped from the roll.

Following the conclusion of routine business a short discussion of the clinic of the afternoon was had.

Dr. Platt again demonstrated his disposition as a willing worker to fill in an interrupted program by reading a paper on "Tin: A Neglected Filling Material," which, although the reader had necessarily prepared very hastily to meet the emergency, was interestingly presented and evoked an instructive discussion.

Dr. R. E. O'Connell will be the essayist, and Dr. B. C. Boeseke the clinician for the May meeting.

OAKLAND DENTAL CLUB.

THE April meeting of the Club enjoyed a large attendance of members and visitors, occasioned principally through the announcement that Dr. A. C. Hart, of San Francisco would present a paper of exceeding interest.

The meeting opened with President Goddard in the chair. The minutes were read and approved.

Dr. W. F. Lewis reported for the committee on revision of constitution and by-laws that it was ready to present the result of its work. However, in view of the fact that Dr. Hart was to read a paper which a number of visitors had been invited to hear, he suggested that consideration of the report be deferred until the next meeting. On motion, it was so ordered.

Dr. R. E. Gilson was elected to membership, and three new applications were received and referred. One resignation was presented and accepted.

It was then announced that the report of the committee on constitution and by-laws, presentation of incidents of office practice and a contribution of an item of interest by Dr. H. P. Carlton would constitute the proceedings of the May meeting.

Vice-President Meek then introduced Dr. A. C. Hart, saying that he had prevailed upon the gentleman to present a dissertation dealing with his investigations of the subject of bacteria.

Dr. Hart then read his paper, entitled "Decay: Its Action and Causes."

After the reading of the paper a recess was declared to enable all present to examine a number of microscopic slides prepared by the essayist. Owing to the late hour a discussion of the paper was postponed to the next meeting, Wednesday evening, May 4th, to which Dr. Hart was invited to be present.

DENTAL CONGRESS COMMITTEE MEETING.

A CALLED meeting of the General Committee, held at the rooms of the San Francisco Dental Association on March 30th, was marked with a large attendance.

The by-laws, as ordered amended and corrected at the prior meeting, were submitted and read for final adoption.

On motion, copies of the laws sufficient for the membership were ordered to be procured.

A communication was read from Dr. Geo. H. Chance, of Portland, accepting the Vice-Presidency of the Congress.

A letter was read from Dr. Fillebrown, President of the National Association, expressing the hope that the State societies of the Coast would send as many delegates to the coming meeting of the Association as they are entitled to. The writer also said that he was personally in favor of a fourth or "Pacific" division of the National Dental Association.

Chairman Lewis here suggested that as the time for the meeting of the National Association at Omaha had been fixed at August 30th, that it was in order that the date of the beginning of the Congress be also fixed. On motion, Monday, August 22d, was named as the commencement date, the meeting to last four days.

The following letter from the Portland Chamber of Commerce to Secretary Meek was read:

PORTLAND, Or., March 19, 1898.

DR. R. W. MEEK, Secretary, Pacific Coast Dental Congress.

Dear Sir: This Chamber has learned that, for certain reasons unknown to us, the vote of your body to hold its annual meeting in August

at Salt Lake City has been rescinded and the matter left open for action of your Executive Committee to decide where the next meeting is to be held. The purpose of this letter, therefore, is to express the earnest desire of our Chamber of Commerce and of the citizens of Portland in general that such Congress may decide to hold its annual meeting in Portland, as being the most prominent place, after San Francisco, of the Rockies, and as being probably the most desirable point which could be selected for that season of the year.

We beg to assure you that the Dental Congress would be well received by our brother dentists of Portland, and that the Chamber of Commerce will be glad to do all in its power to make your stay in this city pleasant and satisfactory. Yours truly,

W. S. MASON, President.

R. LEWIS, Secretary.

On motion, the invitation was accepted, with instruction that that body be so notified.

An invitation to the members of the National Association to visit the Congress will probably be extended, after which it is proposed that as many members of the Congress as can will accompany them on their return to the Omaha meeting.

On motion, a number of names representing various localities and bodies represented in the Congress were nominated to serve on the various committees of the Congress, the nominations being subject to revision by the General Committee at subsequent meetings.

On motion, special invitations were ordered tendered to a number of eminent Eastern practitioners whom it was considered probable would give their attendance.

The suggestion was accepted that the members of the General Committee in Portland be deferred to in the matter of naming the committees of arrangements, reception and exhibits.

On motion, it was decided that the chairman of program committee be a resident of Portland, and that the vice-chairman be a resident of San Francisco. Thereupon Dr. R. Cox, of Portland, was elected chairman, and Dr. F. Platt, of San Francisco, vice-chairman of program committee.

Adjourned to call of Chair.

General Medical Miscellany.

BRAIN WEIGHT AS A GAUGE OF INTELLECT.—Sir William Turner's opinion is that the higher we rise in the scale of humanity the more perfect becomes the control of the animal instinct, and the more do the emotions, passions, and appetites become subordinated to the self-conscious principles which regulate our judgments and beliefs. This is all very well as a pious opinion, and there is a great deal of truth in it, but it is not the whole truth. Higher civilization does not necessarily mean greater inhibition, for it implies in many instances greater self-indulgence. This, by the way, however. We come now to the more direct question of brains. Sir William presents us with an array of figures. We are told that the average weight of the European's brain is from 49 to 50 ounces. These are male weights—and the average weight of the brain for certain picked men of ability and intellectual distinction was from 55 to 60 ounces. He was careful to add that to have a heavy brain is not necessarily to have intellectual eminence. Then why draw deductions at all? Why lead us to infer that because there is less difference in the capacity of crania of men and women of savage races than in those of civilized countries, the women of the latter are relatively more intellectual than those of the former. At this time of day we do not need the authority of Sir William Turner to guide, or rather misguide us on this question.

To speak of the weight of brains as a guide is unscientific—a mere rule of thumb—when it is remembered that intellect is but a part of brain function, and some will not even admit so much, that brain having physiological relations with every structure of the body must have corresponding physical proportions. Not only so, but there are intrinsic differences in axis cylinders, neuraglia structure, the nervous ramifications, and the nerve cells which do not in proportion to bulk or multitude, signify the same thing. Localities of distribution have different physiological

meanings, and quantity may have a negative or positive meaning, according to the structure in question. We have just taken the trouble to go over the brain weights of fifty lunatics, taken without selection from post-mortem records. Five out of 31 males give weight ranging from 51 to 56 ounces, the average of all being $48\frac{1}{4}$ ounces. Of the females, 22 in number, we get an average of $44\frac{1}{4}$ ounces, and of these, three exceeded 50 ounces—viz., $50\frac{1}{2}$, $51\frac{1}{4}$, and $52\frac{1}{4}$ ounces. It is moreover a well-known fact that epileptics have usually large brains. It is, however, no use trying to slay a dead dog, though Sir William Turner has tried to revive him. The facts and the common sense of science speak for themselves.—[London Medical Press.

CAUSES OF BAD TASTE AND ODOR IN THE MOUTH.—The notion existing among the laity, and also among physicians that gastric disturbances are almost exclusively responsible for bad taste in the mouth, is wrong, says Dr. Herzfeld in *Therap. Monats.* Only second to affections of the stomach as an etiological factor, are the tonsillar crypts, in which there accumulate mucus, dead epithelial cells and particles of decomposing food. These cheesy accumulations sometimes come out spontaneously and have a fecal odor. The reason they are so frequently overlooked is because they are concealed by the anterior pillars of the fauces and can be seen by only using a retractor. The treatment consists in removing the tonsils or in slitting the crypts open with a narrow, curved knife. Among the other causes of bad taste the author enumerates: carious teeth, inflammation of the mouth and the throat, adenoids, ozena, suppuration in the nose and accessory cavities, suppurative inflammation of the ear, and lastly, the cause may be of a nervous nature (paræsthesia gustatoria).

SULPHUR, even in such a minute quantity as the fraction of a grain, will increase the efficacy of a purgative pill or powder, by increasing the flatus in the intestine, thus facilitating the expulsion of its contents.

A NEW ELEMENT IN THE BLOOD.—H. F. Muller in the *Centralbl. f. Path. und Brkteriol.*, describes a hitherto unknown morphological element of the blood. It occurs in the plasma especially, near the red blood-cells. These elements are small, colorless, sometimes transparent, strongly refractive bodies, which show a marked motility in the fresh specimen. They are not stained by osmic acid, and thus are not fatty in their nature. They are not fibrin formations, since they are insoluble in acetic acid. The author has found them constantly in normal blood in different individuals and at all times. They vary, however, in number. In hungered and cachetic conditions they are diminished. The writer names them "hæmokonien" or "blood-dust," and considers them as elementary granules, but gives no further characters.—[J., in American Medico-Surgical Bulletin.

NEW METHOD FOR RAPID CURE OF CHRONIC EMPYEMIA OF MAXILLARY SINUS.—George Randorf, of Berlin, Germany, reports the following:

Mr. Luc, after having reminded us that the radical cure of the malady in question is one of the most difficult in rhinology, attributes the frequent failures of the different nasal and buccal operative procedures to the former, allowing an insufficient means of reaching the seat of disease, and to the latter keeping this in too prolonged communication with the mouth, thereby exposing it to fresh infection. He has avoided the inconvenience of both these proceedings, and has united their advantages by the following method:

1. Free opening of the maxillary sinus, through incision of the gingival mucous membrane with the bistoury, at fifteen millimeters over the neck of the teeth, stamping of the mucous membrane with a rasp, and resection of the greatest part of the outer wall of the sinus;

2. Careful removal of all fungus in the sinus by means of electric cautery, and cauterizing with a strong solution of chloride of zinc;

Establishing, by means of chisel and mallet, of an opening of communication between the sinus and the nasal cavity at level of lower part of the inner wall of the sinus;

Introduction of a drainage tube through the artificial opening; the tube is held in the cavity by its widened end, and emerges at the other end, through the nostril;

Reunion of the buccal wound by means of fine catgut, after the cavity has been well powered with iodoform. The buccal wound is cicatrized after three days, and the patient of the disease thus protected from the danger of buccal infection, is no longer in communication with the outer air except by the nose. During the following days the wound is kept antiseptic by the drain, by means of injections of mercurial iodoform, and irrigations with solutions of formalin or boric acid. After a fortnight the drain is withdrawn from the nose by a slight traction, and the cure is complete.—[Items of Interest.

SUPPORTIVE TREATMENT OF INFLUENZA BY CALOMEL.—In the *rap. Monats.* for October, 1897, Frudenthal expresses his belief that calomel is an exceedingly useful drug in the early stages of an attack of influenza. The dose he gives amounts to two grains twice a day to adults, or one grain three or four times a day. For infants, smaller doses, according to age. The claimed effects of this treatment are remarkable. In a few hours he obtains a great fall of temperature and the disappearance of the neuralgic pains and loss of appetite. The advantage of this treatment, he thinks, is that it is inoffensive, and admits of general employment. He believes that a cure can usually be produced in the third day.

FRUIT EATING.—Each year people grow to appreciate more fully the value of fruit, and eat it, not as a luxury, but as a staple article of food. Fruits are nourishing, refreshing, appetizing and purifying, and consequently have a great effect upon the health and the complexion. Yet there are exceptions. Grapes and apples are highly nutritious. These usually agree with the most delicate persons, for

they are so easily digested. Nothing is easier to digest than a baked apple, taken either with or without cream. Oranges, lemons and limes are of great value as a means of improving the complexion, and they are especially good if taken before breakfast. Ripe peaches are easy of digestion and are fattening. Nothing is better to enrich the blood than strawberries, which contain a larger percentage of iron than any other fruit. Fruit with firm flesh, like apples, cherries or plums, should be thoroughly masticated, otherwise they are difficult to digest. The skin of raw fruit should never be eaten, and before eating grapes or any small fruit care should be taken to remove all impurities by washing. Never swallow grape stones. Stale fruit and unripe fruit should never be eaten, and very acid fruit should not be taken with farinaceous foods unless the person has vigorous digestion.—[The Sanitarian.

NOVEL METHOD OF ARRESTING HEMORRHAGE.—Dr. Bienwald describes, in the *Semaine Medicale*, an ingenious method employed by him to control the bleeding from a small wound of the face in a case of hæmophilia in a child two years old. Having failed to arrest the hemorrhage by the application of ferric chloride, some blood was obtained by aspiration from a healthy subject, and deposited upon the wound. In a few minutes coagulation took place and the hemorrhage at once ceased.—[Dental Digest.

FOR CARBOLIC ACID BURNS.—Bathe the burned tissue freely with alcohol, or touch the burned area with chloroform. If this is not employed soon after the burn, however, it will have little or no effect. The *Univer. Magazine* says, when some time has elapsed since the burning brush the parts with a saturated solution of picric acid in water.

FUNCTIONS OF EAR MUSCLES.—Dr. Rumbold Sr., says that the functions of the middle ear muscles are to select and amplify such sounds as the listener desires to hear most distinctly; making it appear that the ears have muscles of accommodation quite analogous to those of the eyes.

Dental Excerpts.

TO FORCE MEDICAMENTS THROUGH DEAD TEETH WITH FISTULOUS OPENING.—Place a pellet of soft, unvulcanized rubber in the tooth cavity; thrust the needle of a hypodermic syringe through the rubber pellet, holding the latter in place. This is superior to, and cheaper than an abscess syringe.—[J. E. Davis, in Ohio Dental Journal.

A LOW FUSIBLE METAL.—

Bismuth.....	48 parts.
Cadmium	13 parts.
Tin	19 parts.

This melts below the boiling point of water and is very hard. It melts at so low a temperature that it can be packed with the fingers. A common plaster impression can be poured at once without waiting for it to dry.

ANOINTMENT FOR THE HANDS.—In the warm days that are now before us, when a rubber glove cannot be worn with comfort while engaged in prosthetic work, an anointment of honey for the hands will subserve the same purpose. It holds the dirt in suspension and dissolves very quickly when immersed in water, leaving the hands soft and clean. Take clarified honey and rosewater, of each one pint; listerine two ounces; mix and bottle. For winter use, add two or three ounces of glycerine.—[Ex.

DISCOLORED TEETH.—All teeth that are discolored are without living pulps. Histologically they have no cells—pigment cells or any others. The dentine consists of formed matter which has been made by cells. It seems to me that the discoloration of teeth is caused probably by two conditions: In the tooth structure the dentine is open; it is traversed by the tubuli; now the tubuli may be filled with a substance which has a color, and which makes the tooth a different color from the rest of the teeth in the mouth, because the tubuli are filled with it. To bleach that tooth you must destroy the foreign-colored substance which fills

the tubuli. Is there not another possibility for discoloration of the teeth, namely, that the dentine itself has been affected by something so that it is of different composition, and the resulting compound of the dentine and some foreign substance has a color different from that of normal dentine? It stands to reason that one of these cases would bleach more easily than the other. I think very often you have the tubuli of the dentine filled with blood pigments which may be cause of discoloration, which can be bleached much more easily than in the second condition in which the dentine itself is chemically compounded with some substance which gives it a new composition and a different color.—[Dr. F. B. Noyes, in Dental Review.

FASTIDIOUS OPERATING.—If there be any one thing which a dentist should cultivate it is delicacy and lightness of touch. Some dentists whom we have known go at their work like a miner with a pick-axe. They are rough, harsh, and their hand, whether with the excavator, the plugger, or engaged in adjusting the various appliances of our art, is ever heavy. Their arms always rests burdensomely upon the patient's head; their finger-nails are continually digging into tender tissues, and there is a coarseness and clumsiness about their operations that marks an unpardonable heedlessness of the comfort of the patient. There are few things which so forcibly commend an operator to those under his care as tenderness, and even daintiness, in regard to their sensibilities. The engine bur should be directed as if it were a sentient thing, and napkins should be used as though they were a spontaneous production.—[Ed. in Dental Prac. and Advertiser.

TOOTH POWDER.—Dr. Eugene S. Talbot, of Chicago, says: In regard to tooth powder, I feel confident that many dentists make a mistake in recommending nothing but soft substances. One writer speaking of tooth powder says "it should contain a scouring or polishing agent of the nature of a minutely-divided powder, such as precipitated chalk."

would ask how much scouring and polishing can be done with chalk? There is no objection to using the chalk for all, but to scour and polish the teeth I prescribe equal parts precipitated chalk and powdered cuttle-fish, carmin color, orris root and fine sugar to sweeten. This mixture, when rubbed up and put through a No. 60 sieve, makes an excellent powder which may be used two or three times a week.

A USEFUL FLUX.—A flux that is exceedingly useful in bridge-work is prepared as follows: Put in a cup—

Boracic acid.....	1 oz.
Ammonia.....	½ oz.
Carbonate of ammonia	½ dwt.
Bicarbonate of soda.....	.2 dwts.
Water	4 ozs.

Boil until the fumes of ammonia are no longer given off. Then dip the bridge or other work all over the gold with the flux. Heat it over a spirit lamp to dry it on. Give it another coat, if needed, leaving no part exposed. Then dip it off where it is desired that the solder shall flow, and it will go nowhere else. The work will come out of the heating as bright as when it went in, and the solder will be smooth. The polished surfaces will not be corroded or weakened.—[Western Dental Journal.

REMOVING PULPS PAINLESSLY.—It often happens that on removing pulps that have had arsenical application, it is found that near the end of the root or roots the nerve is extremely sensitive. This is particularly so in case of molar roots. What is the best method of treatment?

Dr. Beacock's answer led me to try his treatment in these cases. I was quite encouraged to continue experiments. Mix on a slab as many cocaine crystals as a drop of carbolic acid will take up. Keep the tooth dry and convey the mixture to the root-canals by means of a few shreds of cotton on a broach. Then, with a new broach of proper size, work up the canals little by little. Withdraw the broach frequently, going a little farther each insertion. Gen-

erally, after a few minutes of patient manipulation you will have the satisfaction of finding the broach reach the end of the root.—[R. E. Sparks, Kingston, Ont., in *Dominion Dental Journal*.

USEFUL HINTS.

FERROPYRINE is recommended as a hæmostatic in cases of bleeding following tooth extraction.

IN making gold solder pure zinc should always be used, the chemically pure metal prepared for the use of analytical chemists. It is desirable, also, to use for this purpose pure metals only, and, especially for bridge-work, to strictly adhere to a fixed formula. Toilet-pins, brass, spelter, brass wire, etc., are all of unknown composition. We may know the principal metals of which they are composed, but of the impurities always found in metals, as commercially sold and used, we know and can know but little. When pure metals only are used gold solder can be made as tough and free from brittleness as good gold plate.—[*Int. Den. Jour.*

News Miscellany.

FOREIGN RESTRICTIVE LEGISLATION.—Recent legislation in France make it practically impossible for a foreigner there to practice medicine. Before being permitted to practice, regardless of his previous qualification, he is required to first acquire the French B.A. degree, and then go through a five years' curriculum. This means that he must spend seven years in France before being allowed to practice, and this, no matter who he may be, how well known, or what position he may have occupied.—[*Boston Medical and Surgical Journal*, October 28, 1897.

LIQUID AIR.—We record in our journal the production of air—"Oxygen and Nitrogen"—in a liquid form, brought to our notice by Prof. Barker, of the University of Pennsylvania. This is no new thing, yet we have no record where its production has been made in such quantities and in

such a comparatively cheap process as to permit experimentation. Prof. Dewar, of Glasgow, produced liquid air, but at a cost of \$2,500 a quart; but it remained for an American, a Mr. Charles E. Tripler, of New York, to perfect a process by which it can be made at a nominal cost.

Liquid air represents a temperature of 320 degrees below zero. A lump of ice thrown into a vessel of liquid air makes the fluid boil, because the ice is so hot next the temperature of the liquid that the heat of ice imparted causes the ebullition of boiling. It is at this temperature that air becomes a liquid when it is subjected by Mr. Tripler's plan to a pressure of 2,000 pounds to the square inch, sending it afterwards through a coil of pipes, or what is termed "worm," through openings as fine as a needle. After expanding by this process it cools very considerably, maintaining this temperature.

The liquid air which Prof. Barker experimented with at the University of Pennsylvania was received in an ordinary milk can brought from New York. It was not held in iron cylinders as other liquid gases are. It could be ladled out of the can like any other liquid, and mercury and alcohol readily freeze and become solid from the intensity of the cold imparted to these substances.

No application has as yet been made of liquid air, yet it will not be astonishing that it is open to many uses in the arts, and this at the very near future.—[Dental Office and Laboratory.

College Notes.

THE Australian College of Dentistry has been established in Melbourne, Victoria. Dr. A. P. Merrill, formerly of Chicago, is dean.

THE Kansas City Dental College held its sixteenth annual commencement on Tuesday, April 5th. The '98 class numbers thirty-two graduates, among whom are three from California: Francis Marion Caldwell, Frank Ashton Glasscock, and Washington Egan Schumann.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
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FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

UNIFORM DENTAL LAWS.

DENTAL LAWS, as they exist in the United States today, probably present a greater diversity of form and action than the laws at present in force on any other subject.

While they all have for their fundamental purpose the protection of the public and practitioner and the elevation of the profession, the various degrees in which they attempt to accomplish these purposes and the methods by which they go about it are as numerous as the States in which the laws are enacted.

While all our reputable dental colleges are striving to bring the standard of dental education to a common plane, and trying in every way to place their graduates on an equal footing (theoretically at least) it seems strange that there is not a greater effort being made to equalize the laws by which the members of our profession are governed.

Teeth, generally speaking, are as liable to disease in one section of the country as another, and are no more easily cured of decay, mended or replaced when broken or lost in the East than in the West, nor in the North than in the South. Different degrees of education, or of social or financial progress, as manifested in different localities do not materially affect the existing dental conditions; nor does it require less skill and knowledge to save the teeth of a farmer than of a manufacturer; of a laborer than of a statesman. Why, then, should we have in some States laws which require the dentist to pass severe examinations, even after he has legally secured his diploma, and in other

States find laws which practically admit almost any one to practice?

The people of an almost exclusively agricultural or mining State should be as well protected from the unreliable and unscientific methods of incompetent practitioners as would those of the States devoted largely to trade and manufacture, and the public never will be treated with impartial skill in all the States, nor the profession be raised to the highest plane of excellence and honesty while laws exist which permit an ignorant man to practice in one State and deny him that privilege in another.

This question of establishing uniform dental laws is complicated and serious, but we trust the present conditions which work unjustly to both the public and practitioner may receive careful study and consideration in the future meetings of our State and National Associations, and that some plan may be devised which will bring order out of the existing chaos of dental laws now governing the dental profession in the United States.

NOTES.

ATTENTION is called to the following sections of the laws of the National Dental Association which relate to the appointment and qualification of delegates:

ARTICLE III. Sec. 3. All delegate members shall be practitioners in dentistry. They shall be received only from permanently organized dental societies. They shall be elected by ballot at some regular meeting of their society, and shall be members who have done meritorious work for the profession; but no person shall be received as a delegate who is in arrears for dues to this Association.

ARTICLE IV. Sec. 1. Each State society may send one for every ten active members as delegates to this Association for one year, upon complying with the requirements of its constitution; but no society shall be entitled to representation that does not adopt or substantially recognize the Code of Ethics of this Association.

The fact that the *American* Dental Association received delegates from both local and State societies renders it necessary to call attention to the fact that delegates to the *National* Dental Association will be accepted only from State societies, and that such delegates must be elected by ballot at a regular meeting of the society.

THE California State Board of Dental Examiners met at the Grand Hotel, San Francisco, on Saturday, March 26th. All the members were present, Dr. F. W. Bliss presiding.

Certificates to practice were granted to the following applicants: H. D. Stiles, C. J. Taylor, E. D. Keefe, and F. D. Ashworth, San Francisco; W. J. Bell, T. M. Lynn, Los Angeles; Miss Ida L. Menzies, Anaheim; G. E. Bailhache, Healdsburg. Secretary Moore reported that there are over 1200 dentists in California.

THE Faculty of the University of California College of Dentistry has been considering the matter of advancing the date of its annual commencement from the middle of June to the same time in May, for several advantageous reasons. It is also probable that the exercises this year will be held at the University hall at Berkeley, instead of in the city as heretofore.

"THE SORORITY," a correspondent is informed, is a dental college society founded for the social unity of lady students and practitioners. The name is derived from the Latin—*soror*, sister. A student of the University of California College of Dentistry (Miss Beers) is credited as founder of the society.

Publisher's Notes.

THE success of the L. L. White Tooth Crown Co. product on the Pacific Coast, combined with the large inquiry from interocean and Atlantic coast cities concerning its perfect seamless crown manufacture has encouraged the company to broaden its field of usefulness. Consequently Dr. Clyde Payne, vice-president, and Dr. L. L. White, secretary, left for the East on the 10th inst., and will establish factories in New York and Chicago, where they will augment the company's deserved success.

COLORADO STATE DENTAL ASSOCIATION MEETING.

THE twelfth annual meeting of the Colorado State Dental Association will be held in Denver, June 7th, 8th, 9th and 10th, in connection with the Stomatological Section of the American Medical Association.

An excellent programme is assured. Those attending may avail themselves of reduced railroad rates. A cordial invitation is extended to all members of the profession.

Masonic Temple, Denver, Colo.

ARTHUR C. WATSON,
Chairman Executive Committee.

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Original Papers.

IRREGULARITIES OF THE HUMAN TEETH: SOME CAUSES AND REMEDIES.

BY EDGAR PALMER, D.D.S., LOS ANGELES, CAL.

Formerly Professor of Orthodontia in Colorado College of Dental Surgery.

[Read before the Alumni Society of Los Angeles, Cal., April 5, 1898.]

A NOMALIES in dentition, malformations of the dental arch, and the description and demonstration of different methods in use for correcting deviations from the normal denture, is a subject too extensive for me to attempt to do in a half hour more than to outline for discussion some of the more important practical truths connected with it, and which is of chief importance to us in our efforts to correct what nature has seemed to have failed to accomplish in the majority of mouths by not providing every person with "a bold full curve of a normally developed jaw, holding sixteen perfect teeth in easy and beautiful order, and antagonizing sixteen others equally perfect."

The typical mouth is made *ab initio* round and full and in perfect form, but the deviations from such a form are the rule instead of rarity, and so exceedingly variable and important—pathologically as well as physiologically considered—that the subject opens up a vast field for exploration, if we set out for a general roundup of causes, effects and remedies for each individual case.

We are taught in our text-books that irregularities are caused by—

1st. Want of simultaneous action between the destruc-

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tion of the roots of the temporary teeth and the growth of the permanent;

2d. The premature removal of one or more of the temporary teeth;

3d. Disproportion between the size of the alveolar arch and the teeth;

4th. Supernumary teeth, to which may be added other freaks of nature.

Much has been written also in relation to the effect of hybridity in causing the pinched, narrow features and contracted, crowded dentures of the present time.

It is claimed that we inherit our teeth from one parent, and our jaws and alveoli from the other. I am not quite prepared to believe that type has its ghost hid away in the embryonal mass in one corner for the tooth, and in another corner for the jaws, so that when they come together the alveoli are too small in capacity to accommodate the roots destined to be implanted there.

There is no doubt, however, but what the progeny of parents is an equasion by confluence of the two types, and that it is usual for some symbolization of type to mark special resemblance to one or the other side of progenitors, and may manifest itself in the formation of the jaws, alveoli and teeth, as well as other peculiarities.

There is another class of irregularities of the teeth which apparently come not so much from the mixing of discordant elements in races and types as from certain neural disturbances operating in the early life of the child, or having their origin in a like cause among the ancestry, the results of which are transmitted to posterity. Modifications of this nature seem to be associated with the higher forms of civilization, and the natural inference is that *dietetic* habits must be the greatest factor in determining the origin of this abnormal condition.

Nutrition is the basis of the creative function; the evolution of tissue depends upon the constancy and perfection of the nutritive supply. It is upon this theory that Dr. Schenck claims to have been able through the period of

station to dominate and perpetuate a successor to Guy
arwick in the diet of Lady Brooke.

It will be a day for rejoicing when we can supply the
pective mother with all the organic and inorganic ele-
nts of the various tissues or the materials from which
ese elements can be elaborated. A perfect development
the child cannot be expected unless the nutritive fluids
in full vigor and health, for if deficient or diseased the
tus must partake of the imperfection; and if the physi-
system of the child, impoverished and undeveloped,
th diminutive jaws, has to give room to a fixed number
teeth (and always of fully formed diameters) of course
o result must be a crowded, irregular denture, amounting
en to an actual deformity.

The influence of diet, habits, effeminacy, vice, ignorance
d indolence of parents is bad enough when we contem-
te its effect upon the child in causing anomalies of den-
tion, but the rearing of undeveloped and sickly offspring
grow up and propagate their kind is multiplying weak-
ss, deformities and diseases which pollute and transmit
fects to the degradation of the race.

I am aware that the law which guides the origin and de-
opment of the human teeth and their environments is
e pertaining more to the department of embryology than
orthodontia, and that the abnormal developments and
riations from the normal type are of importance to my
bject only as they the relate to cause and effect or condi-
ns attending their existence. It is an inviting field how-
er, and full of wonderful richness for the physiologist
d pathologist, and challenging the dentist to do his part
ward enlightening the public in matters tending to avoid
those inharmonies which are the potent causes of de-
neration and the anomalies of dentition.

The period of life during which the operations for regu-
ing the teeth are usually conducted extends from about
e seventh to the seventeenth year. This is the period of
ildhood when the structure of the alveoli is soft, and
ll formation most rapid. The body has now passed its

most critical years and entered upon its most rapid and vigorous growth. The appetite is strong for hearty food, and all parts of the frame are being renewed, enlarged and solidified.

The perfection and energy of coming years depend on the unbroken continuance of the sturdy digestive process, and this process depends much for its ease and completeness on the efficient mastication of the food. It is now that nature with consummate skill removes the small, frail teeth of infancy and makes room for others which shall be equal to the demands of adult life. She begins the whole process with a firm planting of four large new teeth in the very position where they can most effectually work.

To establish and maintain these valuable teeth in a normal position, and keep them in health until they shall be reinforced by others, is one of the sacred duties of the dentist, and ought to be made the business of parents from the hour a child has warning of their appearance.

We are all aware of the disturbances made in the mouths of our patients by reason of ignorance, carelessness or perverseness on the part of parents, resulting in the too early loss or too great persistence of the temporary teeth. So rarely do we see a sound and perfect set of teeth that we doubt the existence of a *fully matured ideal denture*, and feel that the standard of excellence must be lowered to meet conditions as we find them; or, in other words, we seem to realize that the evolution of human dentition has been from one simple or homogeneous type transformed into a very complex and heterogeneous one, both as regards structure, form and service. The results of dentition are so dependent upon such a nice balance of forces that for parents to disregard the process, or neglect to consult professional skill at this critical period not only multiplies the chances for irregularity, but disease, suffering and ultimate loss of the teeth may result. Not until the mouths of children are given into our care as soon as they have teeth to care for, instead of waiting to consult us only after disease and suffering has worked their ruin, not until then ought

to assume any responsibility for failure to develop a regular serviceable denture, either in the mouth of child or adult.

Look into almost any mouth full of teeth and you are struck with the disproportion between the space which the teeth need and that which they find: there seems to be too many teeth for the jaw or too little jaw for the teeth.

Formerly it required but a few moments to determine whether extraction was demanded to relieve the condition; and now, with all our resources for expanding the arch and relieving the pressure I am persuaded that there is a limit to the conservation of teeth, and good judgment demanded in deciding when to keep and when to sacrifice teeth for the sake of regularity. Especially is this thought applicable to those cases where we can neither expect to control the time and disposition of our patient or receive deserved appreciation for a difficult operation. To fully comprehend the determining conditions which shall decide our action in any given case we must weigh carefully all the circumstances bearing upon age, health, habits, temperament, as well as the financial, social and business standing—all are more or less important factors in indicating the extent and the method of the operation to be undertaken.

Beautiful theory," as Mark Twain said of his story, "because he 'was so tortured with facts.'"

Facts are what bother us most in the progress of our dental operations. Our patient is more interested in saving the time, inconvenience and expense of correcting irregularity than the inducing cause of it. And perhaps the hearers will be more interested if I drop theory and give up some feature of my subject more practical at this time.

The chairman of your committee on program, in his very complimentary remarks requesting this paper, alluded to my long experience and special opportunities for accumulating practical information upon the subject, and naturally I am expected to present some system or method and the results of my labors. I think I can sum up the results of

all my success in correcting irregularities in the words of the great inventor Edison, when he said that his success was due to about "two per cent. of genius and 98 per cent. of hard work." I have never thought I was especially inspired to make a success of orthodontia; in fact, the entire practice of dentistry seems to me to manifest more often the halo of *perspiration* than *inspiration*.

A noted politician was one day traveling across the country, many miles from anywhere, when his horse fell and the trace of the harness was broken. After vain attempts at repairing it he was about to abandon the rig when an illiterate old darkey came along and he said to him: "See here, Pete, I'm in trouble; can't you mend this trace?" The darkey looked over the break and says: "Well, marsa, if yo's a strap guess I can fix it. No? Well, has yo' got a rope?" "No," the traveler said; "if I had I could have mended it myself." "Well, has yo' got a knife?" Taking the knife Pete shambled off to the brush and brought back a strip of stout bark with which he cleverly repaired the trace. Of course, the politician greatly appreciated the work of the darkey, and told him that he didn't see why he had not thought of that way of mending the trace himself. Pete looked up smilingly into the face of the dignified and learned man and remarked: "I dunno, marsa; but I spects it's 'cause some pussons has more sense 'n others." And I am of the opinion if I attempt to elaborate any novel or superior method I am likely to run across some of the darkey's idea of success, which I can truly say is an important factor. There are too many principles involved and too many good methods of accomplishing our object to warrant any one pronouncing his notions of system or method as final in the regulation of teeth. In order to be successful any one who undertakes this work must have a love for it, and the time and facilities for executing all the details in the most painstaking and thorough manner.

Clumsiness of apparatus is the great stumbling block to the success of operations as well as the reputation of the dentist.

Regulating cases are proverbially regarded among busy practitioners as being tedious, provoking and without reward, either in money or the appreciation of the patient.

Too many with plenty of time but a poor conception of what is best to be done, or how to accomplish it, attempt to work with some cheap device, dragging the case along month after month until all parties get desperately tired of it and generally something much less than the ideal perfection is accepted as the best attainable issue. And when the patient is dismissed the dentist draws a sigh of relief and vows he will take no more of this class of operations. But if his work has been weary and disappointing to him and he has seen his patient only occasionally, what must have been the trials and tribulations of the patient who had his appliances for a daily and nightly companion?

Our patients ordinarily endure the discomforts of wearing a fixture if they feel sure that our efforts are making right progress and that we are thoroughly in sympathy with their unpleasantness, and earnest in our endeavor to accomplish our work in the quickest manner and least possible inconvenience and suffering.

When we come to the technic of our subject, the multitude of deviations we have to treat precludes the possibility of referring to any number of illustrations. Our supply shops furnish different outfits for any one who can find a case where they are indicated. For myself, I prefer to make each appliance as required. I have no desire to condemn the use of devices acting purely upon the principle of elastics and springs. They are indicated in many cases, but I do not think the force exerted harmonizes with physiological law, and, besides, such force cannot be made as reliable in my hands as the action of the screw, and is more severe and liable to misguided action. While, on the contrary, the force of the screw exerts an intermittent motion at the will of the operator or patient; and of any degree, whether we are trying to rotate, push, draw or elevate a tooth, or for the purposes of expansion or contraction

of the alveoli, or for retaining securely in place the teeth we have moved.

I have here a case now in course of treatment of a young man 17 years of age. The fixture shown you (Fig. 1) is constructed with a view of pulling the second bicuspid into place where I recently extracted the root of a first bicuspid. As you notice, the tooth is inclined to hide behind the first molar, and must be drawn forward and slightly rotated in its journey to the desired position in the arch. If there is any novel idea to be found in my method of moving this tooth it is in the use of the pulley, which has not been advocated by any one, to my knowledge, for this purpose. (See *i*, figs. 3-4.) Besides the additional power

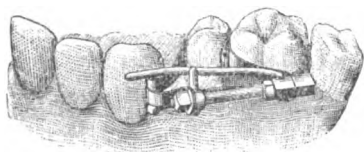


FIG. 1.



FIG. 2.

FIG. 1 shows regulating fixture pulling second bicuspid into line, root of first bicuspid having been extracted to make place for it.

FIG. 2 shows result of 27 days' application of fixture, the tooth being drawn forward one-third of an inch to its desired position in the arch.

or leverage of the pulley, it takes all pressure from the other teeth and exerts it just where it is indicated for all the movements named.

It may seem complicated to some of you, but it is not. Of course, a more simple and inexpensive fixture, like the other one here shown (Fig. 4), and operating a pulley in the same place, can be made with less cost and accomplish its work equally quick and thorough; but I believe the saving is in favor of more time on the fixture in the outset. When teeth are simply inside or outside of the arch, of course the only object of an apparatus is to bring them into line. Unless they are locked and bound between other teeth the process is not complicated, but where there is a jumbled-up condition of all the teeth, resulting from a contraction of the jaw, it then becomes a more serious mat-

We have now to battle with the forces which have tracted the arch; and if we succeed in forcing the teeth to anything like a semblance of form and regularity we find it no easy task to make them remain there without vigilance and patient care.

Too many of us make the mistake of supposing that a pinched, contracted arch is an unnatural condition, and that by our efforts it will become natural. On the contrary, the abnormal condition, as we find it, is truly a natural condition, and cannot be remedied except to create an unnatural condition. It is the same as any of nature's

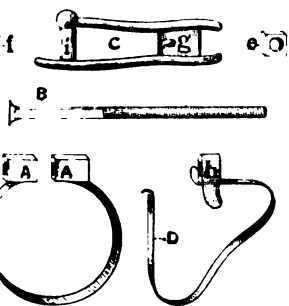


FIG. 3.

Fig. 3.—Pieces of square hollow tubing, soldered to either end of band **A** receive closely fitting portion of screw **B** and drawn tightly to molar by nut **C**. **D** is hooked into loop **G** on underside of platform **C**, resting on molar, and carried around tooth to be moved, and in front of pulley **F** resting close to cuspid. Shifting-brace bar **H** is passed on to the screw, followed by nut **E**, holding all parts together and exerting required force.

Fig. 4 is same appliance simplified, and understood by same symbols.

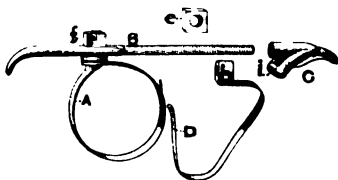


FIG. 4.

Irregularities, such as "clubfoot" or "squint," and we must be about correcting it expecting a desperate conflict, for nature will surely fight us at every step.

But with all the trials, perplexities and poor rewards in cases of this kind there is a certain fascination and excitement which I have found sufficient to induce me to attempt almost any form of irregularity presented under conditions such as I have expressed. Once we take hold of a case we must work out our plan and method persistently and faithfully to the end. We cannot slight our fixtures for cheapness' sake, or to expect careless, ill-adapted appli-

ances to accomplish anything but multiply the annoyances and prolong the operation.

In the hands of intelligence and skill, stimulated by a consciousness of duty and responsibility, the most obstinate cases of irregularity will be made to yield steadily and without serious disturbance of the ordinary affairs of life. And any method or system made use of by any of us ought not to be accredited or condemned for the result of its action, but rather the inspiration, the intelligence, devotion and skill or their negation that stood behind.

FORMALIN.

BY A. C. HART, PH.B., M.D., D.D.S., SAN FRANCISCO.

[Abstract of paper read before the Oakland Dental Club, April 6, 1898.]

THE people know a good thing, but, in the language of the street, they are slow at "catching on."

Dr. Platt is responsible for this contribution. He says: "Your paper on 'Bacteria of the Mouth' is causing me trouble answering letters concerning the use of formalin. Won't you write a paper and tell those people who can't read or won't read but one journal about this good thing, formalin?"

I know it has become a household word for excellence in the removal of foul odors, and without a peer as a germ destroyer. So to those of you who are up to date I say, stop right here, for this paper is to be but a rehash of the literature already published on the subject, with perhaps a few side illuminators from yours truly.

Formaldehyde gas may be obtained by passing the vapor of methyl alcohol (wood alcohol) mixed with air over an incandescent spiral of platinum. Over a quarter of a century ago this gas was discovered, but everything seemed negative to its use. It was intensely irritating, especially to mucous surfaces; when inhaled it caused a bronchitis almost as bad as chlorine gas. Applied in an aqueous solution to mucous surfaces it caused an ugly slough not unlike that produced by As_2O_3 . So experimenters and investiga-

became afraid of so dangerous a compound, and further investigation ceased.

But how the times have changed! A new world of life with its environing influences has been discovered. Bacteriology, so interesting, so difficult, ever filling us with surprises and confounding us with its maze of possibilities, has compelled men to look for compounds deadly to this form of life. So the field of research led to the study of formaldehyde gas, which it was hoped would prove to be a powerful germicide. How amazing has been the results! Today we know that we have in this gas an agent that makes man almost absolute master over these low forms of life. Daily we are learning better to use it and its wonderful range of application. We have a watery solution almost capable of 40 per cent., known in the shops as formalin or formaldehyde HCHO . Also, a polymerized form, $\text{C}_3\text{H}_6\text{O}_3$, known as paraform. This is a nearly white indistinctly crystalline mass, almost insoluble in water, which sublimes at 100°C ., melts at 171°C ., and contains about 85 per cent. formaldehyde gas.

We are authoritatively informed that—

1. Formalin in concentration, 1-10,000, makes the growth of tuberculosis, anthrax, cholera, typhus, pus and diphtheria germs impossible.
2. In gaseous form a weak dilution is sufficient to check growth.
3. A 1-per-cent. solution will kill pathogenic organisms in two minutes.
4. With a 3-per-cent. solution and the final use of alcohol it is possible to make the hands germ-free.
5. Spraying with a formalin solution and subsequent inclosure of the articles in a closed space will easily sterilize them.
6. Uniforms, etc., can be disinfected on a large scale without injury. Used at quarantine stations to disinfect mail.
7. Fæces are deodorized by a 1-per-cent. solution, and are in 13 minutes germ-free; and buildings can be easily

disinfected by a 1-per-cent. to 1½-per-cent. volume of the gas.

8. Formalin is a useful preservative.

As compared with other disinfectants, such as corrosive sublimate, carbolic acid, etc., formaldehyde and its solutions have the advantage of not being retarded in their action by albuminoid matter, and of not injuring the articles to which they are applied. Its use, therefore, seems to be well recommended, and to fill many requirements which are not now fully met by other disinfectants. Especially is this the case in disinfecting rooms, clothing, bedding, railroad cars, etc.

Experiments made by Roux, Trillart and others upon the use of formaldehyde vapor for disinfecting rooms have been very satisfactory, in that the bacilli of anthrax, tuberculosis and diphtheria have been killed within five hours by a saturated atmosphere of formaldehyde gas.

An objection to the use of formaldehyde has been raised because it adheres somewhat tenaciously to clothing and upholstered materials, and the odor dissipates slowly. This, however, can be removed by thorough ventilation or by the use of a dilute solution of ammonia, which readily absorbs the gas. Placed in a room where formalin has been used as a disinfectant, this would cause a more rapid dissipation of the odor and would not injure the materials.

It also appears to be useful as a means of preserving food, milk, etc.

Experiments have shown that very much less than one per cent. by volume of the gas is destructive to injurious bacteria; but an atmosphere containing 1 to 1½ per cent. by volume will give satisfactory results in 6 to 13 hours in all cases. When the volume of gas is increased the length of time necessary for the disinfection is considerably decreased.

The hardening and fixing effect of formalin is dependent on a change (coagulation) of the protoplasm by the vapors that are absorbed; and this explains the antiseptic and disinfectant qualities of the drug. Extensive experiments

the action of formalin on vegetable objects (grapes, es, fungi, etc.) has shown that in every case the addition of $\frac{1}{2}$ per cent. of formalin sufficed to prevent the development of the bacteria of putrefaction.

As to the keeping qualities of formalin, experiments made on solutions of definite strength, kept in closed and open vessels, and tested daily or weekly, show that they are not at all subject to decomposition. A 40-per-cent. solution in a stoppered bottle only lost 1.6 per cent. in eleven months, whilst the amount of formic acid present only increased from 0.05 to 0.1 per cent.

Experiments show that: 1st. In the use of both the gas and the liquid formalin has no effect whatever upon the sharpness of instruments.

2nd. A lamp will burn in any absolutely closed chamber strong enough to generate more than sufficient formaldehyde for its disinfection.

3rd. In a chamber of one cubic foot space three grains of paraform in 15 minutes, or five grains in 10 minutes, will accomplish disinfection on the principles laid down by Koch.

4th. The expense of such disinfection, including the cost of paraform and alcohol, will not exceed one cent, and the labor involved is almost nil.

5th. For the disinfection of small instruments, such as those used by ophthalmologists, otologists, laryngologists and dentists, it is by far the most convenient and speedy method. Neither is there any deposit of paraform upon the instruments that is perceptible or productive of any irritation.

Formalin mixes with water in all proportions. It is, therefore, easy to prepare any dilution that is wanted. If a $\frac{1}{2}$ -per-cent. solution of formalin is desired, one part of formalin is added to 40 parts of water.

Solutions of 1 to 2½-per-cent. are most easily prepared by adding from one-half to one tablespoonful of formalin to a quart of plain water.

Watery solutions of formalin from 1 to 2½-per-cent. in

strength, placed in flat dishes or soup plates in a part of the room least disturbed, and preferably under the bed, will maintain a perfectly fresh and odorless atmosphere in the bedroom. These solutions will last for a week, at the end of which time they should be renewed by the further addition of a quantity of the same solution. A solution that has stood for some time will be found to have lost about half its strength.

A convenient method of developing formalin gas for the disinfection and sterilization of a room in which a patient with an infectious disease has been treated is to heat the formalin dusting powder, containing 20 per cent. of formalin over a hot stove.

For purposes of inhalation in infectious diseases, more especially in all maladies of the respiratory organs, as in laryngeal and pulmonary diseases, in whooping coughs, colds of all sorts, etc., solutions of the strength above given (1 to 2½ per cent.) can be warmed over the night light or stove and permitted to evaporate slowly, care being taken that the supply be kept up. Any slight unpleasant sensation caused by the first inhalation of formalin vapor passes off after the first hour and is followed by a marked relief of the irritation.

According to Dr. H. Kenwood, menthol, if added in small quantities to solutions of formalin, will almost entirely remove the irritating properties of the vapors.

Dr. R. E. Hinman, of Atlanta, Ga., reports, 1895, on the use of formalin in whooping cough as follows: "On the 15th of June whooping cough being epidemic among the children of the Crittenden Home near this city, I was requested to treat them. There were thirteen cases in all stages when the treatment was commenced. The patients were all placed in a closed room, and a one-per-cent. solution of formalin was sprayed from an ordinary hand-bulb atomizer for 10 minutes, three times a day, the spray being thrown above the heads of the patients, saturating the air and being inhaled by them. A marked improvement was noted within three days, and in two weeks all were well, and no

cases developed. In age these cases ranged from three months to four years, with one exception, a girl of about five years, whose duty it was to operate the spray. It was in this last case that the result was most marked. Previous to the use of the spray the paroxysms had been so violent that she would rush to the open air and cling to the support and cough until relief would come through sheer exhaustion. On the fourth day of the treatment the cough had so moderated that only one or two comparatively mild paroxysms occurred, and after the fifth day ceased. About the 20th of August I treated fifteen cases of the disease at the Inman Orphanage. Here I used the atomizer and a one-per-cent. solution of formalin for fifteen minutes three times a day, the room being closed as before. The result was better. Recent cases were cured within a week, and all in ten days. No other treatment was given in these cases."

Formaldehyde at once recommends itself to the attention of the dental profession. It will need but little praise on that part; I certainly have been very happy in its use, and have found it a boon to those desperate cases of recurring decay, where the teeth seem to be literally melting away before the digestive action of bacteria. It undoubtedly hardens teeth out of the mouth, and my experience for the past two years leads me to the belief that it does harden the teeth when applied to their surfaces in the mouth—for a time at least—against the digestive action of bacteria. It will harden those white chalky spots so characteristic of beginning decay, and retards further progress.

For the past year I have used it about as follows: After cleansing the surface to be hardened with pyrozone (3-per-cent. medicinal) I make several applications of the formaldehyde (40-per-cent., just as it comes to us from the shops) to the cavity, carious surface, and healthy portion of the tooth and teeth under the rubber-dam. This I keep up for all 10 minutes. The surface is then dried and coated with a saturated solution of paraform in chloroform, to which has been added sufficient hard Canada balsam to make the

solution a thin varnish. Into this, after waiting for the varnish to nearly dry, may be burnished amalgam, stuck gold, gutta-percha or cement.

Formalin should never be applied to the surfaces of the teeth, except the rubber-dam be in position, fitted evenly around the necks of the teeth, so that there shall be no holes whereby the mucous surfaces of the mouth may become exposed to the action of formaldehyde, as it produces an ugly slough, not unlike that caused by arsenic.

In the application of the formaldehyde I generally include five or six teeth, so that I can treat their surfaces to a bath of formaldehyde, thus preventing the occurrence of decay. I repeat this operation until all the teeth have been so treated. If it is a very bad case have the patient return every three months for treatment. So far, after two years, I have noticed no recurrence of decay or new cavities forming in the teeth so treated. They look harder; they are harder.

Should you be so unfortunate as to get formaldehyde on the gums, and the patient returns with a slough, first cleanse with 3-per-cent. pyrozone, remove any pain by local application of campho-phenique, dry surface of slough and coat several times with the compound tincture of benzoin. Should the patient complain of a smarting sensation, either while applying or after removal of the rubber-dam, try and locate the spot on the gums that have been injured by the formaldehyde. If fortunate enough to discover the spot apply a little weak water of ammonia and follow with an application of 10-per-cent. solution of trichloroacetic acid, which will inhibit the further entrance of the formaldehyde.

As an agent for the treatment of sensitive dentine it is quite effective, especially around the necks of those teeth that have suffered from recession of the gums.

After having used cataphoresis to a tooth its application is almost imperative; for, as it will harden tooth-structure, I believe it will certainly tend to overcome in part the dele-

terious influences whereby the tooth becomes softened and decomposed by the action of electrolysis.

I am daily using and prescribing it in combination with other ingredients as a mouth-wash, and find it most efficient in strengths varying from one-eighth to one-half per cent. Stronger solutions I have found too irritating to mucous surfaces. Various other combinations suggest themselves.

I have found the addition of paraform a valuable adjunct to cement fillings. It makes them very much more sticky and imparts the strong and germicidal properties of formaldehyde gas. Experiment has shown paraform to be vastly superior to hydro-naphthol as an antiseptic and germicide.

Selections.

CONNECTION BETWEEN DISEASES OF THE EYE AND DISEASES OF THE TEETH.

BY CHARLES STEDMAN BULL, A.M., M.D., NEW YORK.

[Abstract of paper read before New York Institute of Stomatology, January 4, 1898.]

THE relation which is supposed to exist between affections of the teeth and diseases of the eye has been familiar to us all for many years, and the belief in its existence is almost as old as the science of medicine itself. The difficulty has always been to explain exactly what this connection is, and how the diseased process is propagated from the mouth to the eye, or, in the reverse direction, from the eyes to the mouth.

Attempts have been made to classify the lesions of the eye which are supposed to be of dental origin by dividing them into two classes, viz., those lesions which are of reflex origin and those which are of an inflammatory nature. All such attempts, however, have been generally too vague and too positive—too schematic; for a reflex lesion may later become an inflammatory lesion, and must thus come to be regarded as the irritative phase of an inflammatory

phenomenon. In these latter days of what may be called the "microbic craze" we are, perhaps, too prone to consider the so-called reflex lesions as more likely to be of microbic origin, thus restricting the reflex ocular phenomena within still narrower limits. Attempts have been made in the past by the advocates of the reflex theory to regard all lesions of the anterior segment of the eyeball, in cases of dental diseases as due to some disturbance of the trifacial nerve, while lesions of the posterior part of the eyeball are considered to be of an inflammatory, infectious nature, propagated directly from the diseased teeth or upper jaw to the orbit, and thence to the eyeball. This is a fanciful classification, which is not justified by our clinical or pathological knowledge.

It is probable that lachrymation, due to irritation of the terminal filaments of the trifacial nerve, is of reflex origin, as may be also amblyopia with peripheral narrowing of the visual field. In the latter case, however, it is possible that the irritation may be propagated by inflammation along the optic canal, where the optic nerve may be compressed or inflamed by the septic elements of inflammation, infected, and thus give rise to defects of vision and a narrowing of the visual field. It is very possible that a dental lesion causing a sensitive impression in the trifacial may reach the great sympathetic nerve, or the ciliospinal center, or even the bulbar enlargement of the cord, and give the impulse to a greater or less number of neurons, according to the degree of impressionability of the subject, or for other reasons. Any or all of these reasons would suffice for the retention of the sensitive impressions in several nuclei and the production of varying motor or vasomotor phenomena.

Congestive phenomena of reflex origin, by means of irritation of the filaments of the trifacial, are said to cause dilatation of the vessels of the eyeball, and even to set up keratitis and iritis. Cases of iritis occurring in the course of abscess of the maxillary antrum with dental caries are probably of pure microbic origin. Mere conditions of irri-

tation and congestion of the eye may be the starting point of a microbic infection.

We know that infection of dental origin may extend to the sinuses of the face—not only the antrum but the frontal sinus, ethmoid sinus, or sphenoid antrum—by the natural opening into each of these sinuses. . . Thus alveolar dental periostitis may cause thrombophlebitis of the cavernous sinus and secondary orbital phlebitis, not only when starting in the superior maxilla but also when confined to the inferior maxilla.

An interesting fact has been brought out by Reynier and Parinaud. They have proved that in certain cases of orbital cellulitis from alveolar dental periostitis and abscess of the antrum the pus does not reach the orbit by stripping up the periosteum, for there is no periosteum. The pus spreads through the bone itself. Pus starting in an alveolus may perforate it; but, on the other hand, it may not destroy the alveolar wall, but pass through the canaliculi or foramina at the apex of the alveolus, and thence into the infra-orbital notch, or through one of several orifices situated in front of the lachrymal sac, in the ascending ramus of the superior maxilla. These orifices often communicate directly with the nasal fossæ or antrum, so that the pus coming from a carious alveolus may reach the orbit either by passing through the sinus or by avoiding it. * *

It would seem wiser to not attempt to classify the ophthalmic lesions met with in connection with morbid processes in the teeth, and to consider the subject under two heads. *First*, lesions of the eye met with in the course of dentition, both primary or early, and secondary. The connection existing between certain affections of the eye and early dentition is very close, and is recognized by all practicing physicians. Some of the ocular manifestations met with in the course of early eruption of the first teeth are sympathetic in nature and probably reflex in origin, such as photophobia and lachrymation. Others are of a distinctly inflammatory nature, though also reflex in origin, such as the various forms of ulceration of the cornea and conjunc-

tiva. . . *Second*, lesions of the eye occurring in the course of diseased processes in the permanent teeth. The reflex theory has many strong advocates, one of the most recent being Knies (1895), and from the time of Mackenzie, in 1833, down to the present day most writers on ophthalmic diseases have given more or less adhesion to the doctrine. It is only when we reach the period of bacteriological investigations that the reflex theory of origin begins materially to lose ground. * *

Without quoting the names or opinions of the long list of authors who have expressed their views on the subject, it seems to be definitely settled that a relation exists between certain lesions of the eye and certain diseased conditions of the teeth. . . For convenience we may perhaps divide the lesions into three groups, as follows: 1. Those dependent on vasomotor disturbances, which would include all cases of disturbance of nutrition, all inflammatory cases and the reflex cases, such as amblyopia and amaurosis without ophthalmoscopic evidence. 2. Those dependent on disturbances of sensibility, such as ciliary neuralgia and the various forms of asthenopia. 3. Those characterized by disturbances of motility, including all cases of spasm and paralysis of the muscles of the eye, including the iris and ciliary muscle.

The eye complications of dental disease are of varied nature. Beginning with the most superficial structures of the eye, the first subject that will engage our attention is the *eyelids*. Herpetic eruption of the lids in the course of the terminal branches of the fifth nerve is often met with in connection with carious teeth, and resists all treatment until the teeth are extracted or properly filled. Hutchinson has reported an interesting case of constant spasmodic contraction of the levator of the lid in a lady who had four decayed molar teeth in both jaws on the corresponding side. These were removed and all ciliary neuralgia at once ceased, but the spasm remained. The left upper first molar contained an amalgam stopping, which on being removed revealed an exposure of the pulp. This

tooth was also removed, and improvement in the muscular spasm began at once, and the spasm, shortly stopped altogether. This may be regarded as purely reflex. On the other hand, Redard has reported a case of paralysis of the lid which resisted all treatment. A careful examination of the mouth showed extensive caries of the upper third molar, and on this being removed the paralysis began to improve, and in a few days the lid had completely regained its power. Ely has reported a case of paresis of the orbicularis muscle associated with spasms of the ciliary muscle in a patient with an abscess at the root of the third upper molar on the right side. This tooth was extracted and the ocular symptoms immediately disappeared.

Ely reports a typical case in a man aged 35, who had severe neuralgia of the right side of the face, with ulcer of the conjunctiva and scleritis of the right eye. There was in the right upper cuspid tooth an ulcerated spot just below the gum and the pulp was exposed. The pulp was destroyed, the ulcerated spot treated, and the neuralgia ceased at once, and in a few days the eye became perfectly well.

Ely further reports in detail the case of a man, aged 31, who had not only paralysis of accommodation in the right eye, but also paralysis of the right internal rectus muscle. The root of the first upper molar tooth on the right side was denuded, rough and sensitive. The pulp of the tooth was dead, the alveolar process was absorbed, and there was extensive suppuration in the adjacent parts. The condition of the tooth was rectified and the symptoms all disappeared.

Dunn reports a case of paralysis of accommodation, with impaired vision and severe ciliary neuralgia in a patient, who was found to have an abscess at the root of the second molar tooth of the lower jaw on the left side. The tooth was extracted and the alveolar cavity antiseptically treated, and in a few days all the ocular symptoms entirely disappeared. * *

Park reports a case of a patient who complained of headache, loss of vision in the right eye, and some photopsic manifestations. A few days later vision in the right eye was reduced to perception of light. The ophthalmoscopic

examination was negative. There was concentric narrowing of the field of vision. An examination of the mouth revealed five decayed teeth in the right upper jaw, and an artificial plate was found resting and pressing on the decayed roots. The roots were all extracted, and vision began to improve at once, and in two months was completely restored.

In the *Courier Medical* for 1890 will be found the report of a case of a lady, aged 30, who complained of failing vision in the left eye, accompanied by severe toothache in the second left upper molar tooth. In one week from the onset of the attack the left eye became entirely blind, without any ophthalmoscopic evidence of disease. The diseased tooth was extracted, and pus immediately flowed from the alveolar cavity. Examination revealed a small piece of wooden toothpick, which was removed from the cavity, and in a few days there was complete restoration of vision. * *

Proceeding next in the course adopted, from without inward, from the superficial affections of the eye to the deeper and more serious lesions, in connection with diseased processes in the teeth, we come to consider inflammation of the optic nerve, or *optic neuritis*, including the immediately surrounding zone of the retina. Of this disease we have a number of undoubted cases on record. In 1893 Hermann reported a case of inflammation of the optic nerve of the variety known as papillitis, occurring in a patient in whom no cause for the lesion could be found until the teeth were examined, when a carious tooth was found accompanied by toothache. Unfortunately, the extraction of the tooth and the cure of the suppurative process had no beneficial effect upon the inflammatory process in the optic nerve.

Despagnet reports a very clear and interesting case occurring in a woman, aged 24, in whom there was optic neuritis with dilatation of the iris. An examination of the mouth showed caries of the last molar of the upper jaw on the corresponding side, with extensive periostitis of the alveolar process and a sequestrum of the alveolar arch. There was suppurative inflammation in the antrum directly connected with the diseased alveolus, and the suppurative process was

and to have extended to the orbit as far back as the foramen opticum, and here had involved the optic nerve.

Firsch reports a case of optic neuritis ending in atrophy of the nerve and blindness, in which the disease evidently started in the left second upper molar. There was an extensive abscess involving the gum, cheek and lower lid, which had perforated externally. A probe could be passed through the external opening in the cheek along the floor and inner wall of the orbit. The infection had extended from the tooth-cavity and set up alveolar periostitis, which had involved the antrum and floor of the orbit, and set up orbital cellulitis, inflammation, and eventually atrophy of the optic nerve.

Feuer reports two cases of optic neuritis ending in a complete cure and restoration of vision after extraction of the diseased teeth. In the first case there were three decayed teeth with osteoperiostitis of the alveolar arch and antrum, and exophthalmos and optic neuritis. In the second case the third molar in the right upper jaw was diseased, with periostitis of the alveolar arch, and of the floor and inner wall of the orbit. The loss of sight was complete in the affected eye, and coincided with the occurrence of inflammation and pain in the orbital floor. The vision was completely restored in three months.

Cases of this sort might be multiplied almost indefinitely, and enough have been presented to show the connection which actually exists between diseased teeth and the inflammation of the optic nerve.—[International Dental Journal, March, 1898.

AMALGAM AND CEMENT IN COMBINATION.

BY R. S. VIBERG, D.D.S., FORT WAYNE, IND.

IN my mind, the most prominent objections to large amalgam fillings are, first, shrinkage; second, lack of edge strength; third, discoloration. Now, if amalgam is used in the ordinary way—that is, packed directly against the unprotected walls of the cavity—the above objections are almost certain to follow. For this reason I prefer to first prepare my cavity with the least waste of tooth-structure, and then line the walls with a thin cement, into which the amal-

gam is placed and forced into the retentions while the cement is plastic. By this you will see that I have a chemical adhesion between the cement and the tooth, while a mechanical union exists between the cement and the amalgam. By this means the filling has the retention of every particle of the tooth-structure, and the tubules are all safely sealed. I also believe that by this method we overcome the large amount of shrinkage because of the decrease in the amount of amalgam used.

Discoloration of the tooth-substance is overcome entirely, because the amalgam does not come in contact with the tooth walls, except at the margins. Thus the objections to filling posterior parts of the cuspids, or anterior parts of the bicuspid, which are dangerous to fill with gold, are virtually overcome.

To build up a badly broken-down molar in which the root-canal is filled, all frail walls should be trimmed away and a strong dovetail made in the pulp-chamber. This will be all the retention necessary. Dry thoroughly, place in your cement, and while it is soft add a large plug of medium soft amalgam and force to place. Wait a few minutes for the cement to set, after which clean away all cement on the margins. Then continue filling in the usual way with a new mixture of dry alloy. In case the pulp is living, I find it best to cauterize the cavity with silver nitrate, cap the pulp in the usual manner, flow cement over the capping, and then use the amalgam as described above.

The disadvantage of this method of filling teeth is the time required. The advantages are:

1. Adhesion of the filling to the cavity walls.
2. Non-discoloration.
3. The hermetic sealing of the tubuli.
4. Additional strength to the cavity walls.
5. Lessened susceptibility to thermal changes.
6. Compatibility of tooth and filling.
7. Avoidance of large undercuts and grooves which weaken the cavity walls.—[Indiana Dental Journal.

THE MAN who takes the short cut to success generally has to go back and learn the regular road.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, APRIL 5, 1898.

CLINIC.—Dr. Corydon B. Root. Bleaching right superior lateral with 25-per-cent. aqueous solution of pyrozone by cataphoresis.

DISCUSSION—DR. ROOT'S CLINIC.

Dr. C. B. Root.—The pulp having been devitalized and the pulp-canals filled nearly to the cervex of the tooth, a 25-per-cent. ethereal solution of pyrozone was changed into a 25-per-cent. aqueous solution by adding one volume of distilled water to two volumes of the ethereal solution; the ether was then dispelled from the solution by heating in an evaporating dish. The necessity of changing the pyrozone into an aqueous solution lies in the fact that the ether offers a higher resistance to the electricity. Enough sulphate of zinc was then added to form about a one-per-cent. solution, the object of this being two-fold: First, the addition of a salt to the solution, to diminish the resistance to the passage of the electric current; and, second, for a coagulation which this salt effects upon the bleached organic matter. This resulting zinc coagulum is translucent and resists organic changes to a marked degree, thereby greatly adding to the permanency of the operation. I believe that Dr. — Hollingsworth was first to use this salt for this purpose. The time consumed in the bleaching was exactly forty minutes.

Dr. F. M. Hackett.—The bleaching was very satisfactory, and the method used an improvement on the ordinary methods employed. There was a greatly improved change in the appearance of the tooth in a very short time, the tooth being very dark at commencement of the operation.

Dr. A. F. Merriman Jr.—Having no experience with cataphoresis, I would ask Dr. Root why not use zinc sulphate after tooth is bleached? as I judge that the coagulating

effect of this salt would interfere with the bleaching agent if used with it.

Dr. Root.—I believe the bleaching agents would cause a coagulation of the contents of the tubuli if used alone. However, in practice this salt does not interfere with the bleaching agent, as medicaments will penetrate denser substances than this coagulum with the aid of the cataphoric current.

Dr. R. H. Cool.—The clinic was scientific, and it reminds me that about eight years ago, while visiting in the East, I endeavored to find some one who could bleach teeth. Dr. A. W. Harlan of Chicago was reputed to have the best method at that time, and he demonstrated to me the use of alum and Larabee's solution. When I returned to my practice I used this method with success, but found as a drawback that frail teeth were weakened and in some cases fractured. I have experimented with a 25-per-cent. solution of pyrozone and hot air, and have been very successful. I would now like to speak of a method of obtaining a continuous hot-air blast, which was invented by a gentleman of Fresno, California. This hot-air blast was used today and showed that it is the best hot-air appliance extant. By means of cataphoresis, as demonstrated today, you obtain all the benefits to be obtained by the hot-air blast without any pain from driving ethereal pyrozone into the root further than may be desired. This may cause neuralgic pain lasting for twelve hours and even longer. The using of zinc sulphate is new to me, and I think is scientific and practicable. The result obtained today shows that is beyond any method we have used. I take exception to the use of cataphoresis for relieving pain, but it has a splendid field as an aid to the bleaching of teeth. I have found it to be a good idea to use ammonia before bleaching, as it serves to remove fatty substances from the tooth.

Calcined oxide of zinc used with the liquid furnished with oxyphosphate cements forms a fine white cement to line interior of cavity after bleaching.

MEETING OF TUESDAY, APRIL 12, 1898.

EXHIBIT.—By Dr. Corydon B. Root. Case of fibroid growth, about size of walnut, involving the anterior alveolar ridge on left side; patient, lady; aged 58 years; edentulous mouth.

No evening session.

MEETING OF TUESDAY, APRIL 19, 1898.

CLINIC.—By Dr. S. E. Knowles. Removal of fibroid growth exhibited by Dr. Root at former meeting.

No evening session.

MEETING OF TUESDAY, APRIL 26, 1898.

EXHIBIT.—Dr. Russell H. Cool. Case of regulating with silk ligatures. Patient, girl; aged 9. The bite of both superior central incisors was inside the lower arch. Attrition from mastication had worn away the labial margin of cutting edge until it was very thin. The two teeth were brought forward into position (jumping the bite) in six days, silk ligatures being the only agents used. The deciduous cuspids were in place, thus compelling the two lateral incisors (permanent) to be the only base for the application of force.

No discussion.

At the evening session, Dr. W. F. Southard, editor of the *Pacific Medical Journal*, gave an interesting and instructive account of his observations while attending the International Medical Congress held at Moscow, Russia, in 1897; also notes of his trip through southern Europe. A vote of thanks of the Club was given the Doctor for his edifying entertainment.

MEETING OF TUESDAY, MAY 3, 1898.

EXHIBIT.—By Dr. S. E. Knowles. Regulation case; age, 13; right superior bicuspid, with bite inside the lower arch. Method used: coffin plate. Time consumed, 32 days.

EXHIBIT.—By Dr. S. L. Strickland. Case of necrosis of alveolar process in boy, aged 12; cause, placing an arsenical preparation in right inferior first molar for devitalizing purposes and leaving in tooth for 14 days. Sequestrum, about $\frac{3}{4} \times \frac{1}{2}$ inch, formed and was removed about ten days prior to exhibit. Treatment.—Antiseptic solutions and packing of iodoform gauze into wound. Inspection at present time shows healthy granulations and wound rapidly healing.

At this meeting the office of treasurer was declared vacant, and Dr. F. M. Hackett was elected to fill the office, and also a member of the Board of Directors. Dr. C. B. Root was elected assistant secretary of the Club.

No evening session.

SAN FRANCISCO DENTAL ASSOCIATION.

At the afternoon session of the Association the members present, at the request of the clinician, Dr. B. C. Boeseke, visited him at his laboratory in the same building, where he gave an instructive demonstration of tempering, reshaping and making small instruments.

At the evening session the committee appointed some months ago to prevail upon the Board of Education to make provision for lectures to pupils of the public schools on dental hygiene, reported that the committee of that body which had the matter before it had made no reply.

Secretary Miller reported that considerable money had been paid in by delinquent members through the medium of a collector.

The death of Dr. E. L. Strain was reported.

The names of applicants Drs. Charles A. Devlin of Vallejo, W. E. Brooks and B. A. Bosqui of San Francisco, were balloted for and elected.

One application was received and referred.

Dr. H. D. Noble will read a paper at the June meeting on "Naso-Pharyngeal Obstructions."

Dr. A. C. Hart, being called on, entertainingly gave an account of some of his microscopical studies.

OAKLAND DENTAL CLUB.

THE May meeting of the Club, held on the evening of the 4th, was well attended.

The applications of Drs. R. A. Summers, Frank C. Pague and E. C. Timerman, being favorably reported on, these gentlemen were elected members of the Club.

The Committee on By-laws, through Dr. Lewis, presented its report, which was read, amended and laid over until the next meeting for final adoption.

Dr. H. P. Carlton, designated to present an item of interest, called attention to an article in *March Items of Interest*, entitled, "Some Cements," by Dr. W. B. V. Ames, of Chicago. Dr. Carlton distributed a number of samples of oxychloride of copper amalgam prepared by Dr. Ames.

particular virtue claimed for this cement is that it can be placed in the pulp-chamber of a tooth in which the pulp has recently been devitalized, and be relied on to mummify the remaining pulp tissue than any other agent known.

A discussion of the paper on formalin, read by Dr. A. Hart at the prior meeting, followed, some incidents of the results of its application being related by those who had experimented with it. Dr. Hart added further information as to his experiments with formalin (a paper on the subject being printed elsewhere in this issue).

Dr. R. W. Meek was named as the essayist for the June meeting. Dr. James Plunkett is to present a paper for the September meeting, Dr. S. A. Hackett to present an item of interest.

Two meetings of the Club will be held in July or August.

DENTAL CONGRESS COMMITTEE MEETING.

At the regular meeting of the Committee of Dental Congress held on Wednesday evening, April 27th, the further nomination of members and chairmen of the sub-committees was made the order of business. The membership of several committees were left incomplete, it being considered that the names of the Committee on Local Arrangements and Exhibits be deferred to the members of the General Committee resident in Oregon.

A SPECIAL MEETING.

On Tuesday evening, May 17th, a special meeting of the committee was called by Chairman Lewis, who stated that Dr. George H. Chance, vice-president-elect of the Congress, was on a visit to San Francisco from Portland, he deemed it pertinent to call the committee together to listen to any information and suggestions that would be advantageous to the success of the Congress.

A member of the Congress having been associated in a dental advertisement enterprise caused the question to be raised that it was a violation of the code of ethics. Several members thought not, and considered that the nature of the publication did not admit of cause for action. As

Chairman Lewis had expressed a desire to have the gentleman placed on a committee, because of valuable services rendered in the past, the proposal aroused some discussion, and in order to settle the issue, the Secretary-General was instructed to prefer charges for an investigation.

The list of committees and naming of chairman of same was then completed, with an order that the residence location of each member be printed on program.

Dr. Chance then, after some instructive remarks, said it was proposed that the first three days of the Congress be devoted to work: holding clinics in the morning, and the afternoons and evenings devoted to papers and discussions; then devoting the two following days to an excursion and bathing trip down the river. He felt sure that the citizens of Portland would contribute considerable to the pleasure and comfort of the Congress visitors.

It was decided to extend to the medical profession of Portland and vicinity an invitation to be present at the Congress, both as visitors and contributors.

The suggestion was made that visitors be admitted to the proceedings of the Congress by card only. It was decided that a button-badge designed for permanent use by the Congress be adopted.

Chairman Lewis then announced that the next meeting of the General Committee would be held at the Oakland Dental Club room on Wednesday evening, June 8th.

Secretary Meek then read the list of committees as completed thus far, as follows:

EXECUTIVE.—S. J. Barber (chairman), W. A. Cumming, W. Z. King, Thos. Morffew, L. Van Orden.

AUDITING.—L. E. Hibbard (chairman), W. C. Logan, F. H. Metcalf.

PUBLICATION.—W. A. Knowles (chairman), J. D. Hodgen, R. W. Meek.

EXHIBITS.—E. G. Clark (chairman), A. L. Lincoln, Ney Churchman, A. H. Millberry.

TRANSPORTATION.—Frank C. Pague (chairman), H. G. Richards, H. D. Boyes, George H. Chance, T. L. Nicklin, Wm. Wood.

PROGRAM.—N. R. Cox (chairman), F. L. Platt (vice-chairman), J. P. Parker, J. M. Meyer, E. L. Townsend, A. C. Hart, Arthur Chance, F. K. Ledyard, B. F. Eschleman, W. F. Sharp, H. P. Carlton.

INVITATION AND MEMBERSHIP.—F. W. Bliss (chairman), W. E. Burk, Edgar Palmer, J. M. Whitney, W. H. LaBaree, E. L. Lane, C. R. Pleton.

RECEPTION.—J. T. Tate (chairman), F. P. Hicks, Geo. W. Bragdon, C. Stolte, F. E. Ferris, H. C. Miller, Mark Hayter, N. I. Boone, G. S. Kman, W. R. Bird, H. R. Harbison, J. C. Griffith, S. A. Mulkey, J. J. Asay, —. —. Pittwood.

PERATIVE.—B. E. Wright (chairman), B. S. Scott, S. E. Knowles, A. Copsey, A. M. Barker, A. F. Merriman Jr.

PROSTHETIC.—E. P. Mossman (chairman), Charles Borton, J. A. W. Edborg, W. A. Bryant, C. E. Post.

LOCAL ARRANGEMENTS COMMITTEE.—S. J. Barker, F. I. Ball, Ney Archman, E. P. Mossman.

ETHICS.—W. A. Knowles (chairman), C. E. Post, W. Z. King, F. L. St. Frank C. Pague.

STOMATOLOGICAL SOCIETY OF SAN JOSE.

On Thursday evening, May 5th, Drs. S. A. Maynard, S. L. Walton, Arthur A. Fowler, J. L. Asay, C. C. Marckres, F. J. Smith, C. A. McGettigan, H. P. Hanson and L. D. Webster met at the office of the two first-named gentlemen for the purpose of forming an organization of advanced standard dentistry.

Dr. Asay, as temporary chairman, called the meeting to order, Dr. Marckres acting as secretary.

On motion it was resolved that the organization be called Stomatological Society of San Jose, and that it is organized for the following purposes :

First.—The discovery and promulgation of scientific truth relating to dentistry and oral surgery, and the promotion of the highest excellence in the art and science connected therewith.

Second.—For the cultivation of good fellowship among its members and the observance of professional ethics.

Third.—To hold a series of clinics at the offices of the different members.

The following were elected as permanent officers :

President	S. A. Maynard.
Vice-President.....	J. L. Asay.
Secretary.....	C. C. Marckres.
Treasurer.....	A. A. Fowler.
Chairman of Board of Censors...	S. L. Walton.

The Society then adjourned to meet at the office of the president on Wednesday, May 11th, at 8 P.M.

Correspondence.

ANTIDOTE FOR EROSION ACTION PRODUCED BY ARSENIC.

WOODLAND, CAL., April 1898.

EDITOR MEDICO-DENTAL GAZETTE: I have just read a very excellent article in the March number of the GAZETTE on "Arsenical Necrosis," and I wish to add that in the tincture of iodine we have a very reliable antidote for the erosive action produced in the soft tissues by arsenic trioxide. It has proved to be so certain and prompt in arresting the inflammation and ulceration caused by the accidental contact of arsenic with the gums or cheek that I regard it as almost a specific. I cannot say that I understand fully its *modus operandi*, but I can afford to use it empirically until its mode of action shall be explained if it continues to be as effective as it has been in my past experience. If other operators have used it in the same way I shall be glad to learn what the results have been.

It occurs to me that if those who use arsenic to destroy nerves estimate at their full value the terrible ravages that may be caused by it, and know how easily they may be arrested and cured, it is inexcusable, if not criminal, to permit a case to go on to necrosis of the bony structure.

A. N. DICK.

General Medical Miscellany.

NEW METHOD OF ARRESTING HEMORRHAGE.—The matter of arresting hemorrhage, even from slight wounds, sometimes is a serious problem. A novel treatment was recently adopted by Dr. Bienwald, and reported in the *American Journal of Surgery*. In the treatment of a small child, the subject of hemophilia, having failed to arrest the hemorrhage from a small wound on the face by the application of perchloride of iron, he obtained some blood by aspiration from a healthy subject and deposited it on the wound. In a few minutes it coagulated, and the hemorrhage at once ceased. His explan-

of the action of the remedy is that it supplies the element necessary for thrombosis in the small vessels. Whether this is correct or not it is impossible to say in the absence of definite knowledge of the pathology of hemophilia. Affording his explanation some support may be mentioned the success obtained by Wright in his experiments with a solution of fibrin ferment and chloride of calcium as a hemolytic. Bienwald's ingenious method deserves careful investigation.

OZONE.—It may not be generally known that a very simple and effectual way of bringing ozone into the house consists in first suspending moist linen sheets in a keen, dry wind, and afterward hanging them up in the house. The air in the room will thus become considerably charged with ozone, and its presence will be easily detected by its peculiar smell, while a moistened starch-iodide paper will instantly turn blue. Why ozone is accumulated in wet clothes in this way is not quite understood, but it may be due to the rapid passage of the oxygen in air over a large wet surface. It is not improbable that this interesting phenomenon plays an important part in the real hygienic cleansing of our linen articles of clothing. In big laundries, when not-quite-dry linen is brought in after having been exposed to a cold, dry air for a short time the smell of ozone is almost more than is agreeable.—[The Lancet.

EPSOM SALTS.—In severe cases of constipation of the bowels, with frequent vomiting, cathartics are often rejected, and enemata have proven valueless. Epsom salts may be pleasantly given as follows: About three tablespoonfuls of boiling water are added to one tablespoonful of epsom salts, the mixture stirred well, the liquid decanted, residuum retained, and a little lemon juice added. This proves very efficacious, agreeable and acceptable to patient. Renew every four hours until bowels respond. If lemon-juice is not procurable, try vinegar.—[Ex.

ROLE OF THE GIANT CELLS.—A. Pugliese, in *Fortschritte der Medizin*, says: The blood-forming organs of many animals contain giant cells. It has been claimed that red blood corpuscles arise from their nuclei. The author showed that

extirpation of the spleen brought about an increase of the white blood corpuscles. Induced hemorrhage has the same result. The animals experimented upon showed a great increase in the giant cells, sometimes in the spleen, sometimes more marked in the red marrow after these operations. The nuclei were seen in active divisions. The protoplasm of the cells disappeared and left fragments of their nuclei as free elements in the spleen and marrow. These bodies possessed the staining reactions of the ordinary mononuclear cells of the hematopoietic organs. The author thinks he can conclude, therefore, that the leucocytes come from the nuclei of the giant cells.—[Columbus Medical Journal.

TAKING PILLS.—Place pill *under* tongue and swallow some water, and (if possible) think of something else. It generally is a case of unconscious absorption.—[Ex.

BLOOD-STAINS.—Wash blood-stained napkins in warm solution of tartaric acid and rinse in clear water.

Dental Excerpts.

TEETH AND THE SOIL.—Examination of recruits in Bavaria and Sweden conducted on a large scale have confirmed the assumption that the richer the soil in lime and magnesia, the harder the drinking water, the more perfect the development of the teeth.—[Munch. Med. Woch.

ANNEALING STEEL.—To anneal small instruments, take iron pipe, plug up one end and fill up with tools. Sift in fine charcoal dust, plug the other end, and heat slowly until good red heat throughout; then bury in wood ashes, fine charcoal or sawdust kept in an iron or tinbox with close-fitting lid, and let lie until absolutely cold.—[Ex.

FUSIBLE ALLOY.—The following metal will melt when thrown into boiling water. It has a consistency equal to silver and can be used with satisfactory results in crown and bridge-work, since it can be poured into impressions taken from modeling compound: Bismuth, five parts; lead, three parts, and zinc, two parts.—[Dental Digest.

TO PREVENT BROACHES TURNING.—I have long been troubled by having my canal cleansers turn and pull out readily from the handle, but today I easily fixed a couple so they do not. One way is to coat the shank with soft solder, but a better and more convenient method is simply to roughen the shank by the easiest means. I accomplished it by simply filing with the edge of a file.—[Dr. R. Mathews, Wichita, Kans.]

THEORY OF BLEACHING TEETH.—A great many branches of the dental profession are followed without a sufficient understanding. You will find, for instance, that in the bleaching of teeth nobody knows what the real theory of bleaching teeth is and there is not a satisfactory method today. Any one who makes an immortal name in the dental profession by inventing or devising or studying out that subject from beginning to end and giving it to the profession.—[Dr. Louis Stouffer.]

HYDRONAPHTHOL IN ROOT-CANAL TREATMENT.—In the treatment of a putrescent pulp-canal use hydronaphthol-alcoholic solution 25-per-cent. The penetrating property of the alcohol and its affinity for moisture carry it, laden with the hydronaphthol in solution, to the remotest nook and corner of the pulp-chambers and canals, however small, even to the apex and through the soft tissues, as well as into the tubuli. The alcohol evaporates, leaving the hydronaphthol to do its useful work of disinfection. It is powerful as a lion, cunning as a serpent and harmless as a dove.—[S. S. Stowell in Dental Cosmos.]

HOT WATER TO RELIEVE PAIN.—In a paper read before the New Jersey State Dental Society, Dr. E. H. Allen, advised the following treatment, "To reduce pain and inflammation of the root of the tooth in cases of pericementitis, also the pain occasioned by a setting of a crown or bridge, apply hot water to the gums and about the root of the tooth or teeth affected. For the application of the hot water, use a two-quart fountain syringe, hung about six feet from the floor, conduct the water through rubber tubing into the mouth of the patient, delivered through a nozzle with an opening about one-twenty-fourth of an inch; water to be

as hot as can be borne in the mouth. The water can be taken out by the saliva ejector attached to the fountain spittoon. This will in most cases give quick relief." Our method of treating, under similar conditions, is to have the patient hold hot water in the mouth, which is repeated several times. This assists the capillaries in establishing a more normal circulation, thus relieving the pain.—[International Dental Journal.]

TREATMENT OF ROOT-PERFORATION.—Dr. Register advises, in the treatment of root-perforation, to pack in the canal and against the pericementum, at the point of perforation, a small quantity of salol, and over this place a cone of zinc phosphate. He adds: "Of course, the salol disappears, as it always does after a period when used as a canal filling, but while it lasts it performs its office as an unirritating antiseptic." From our clinical experience, we would say, the fact that the salol disappears is reason sufficient to discard it, either for the purpose spoken of or for a root-canal filling. For closing these perforations there is nothing better, after thorough sterilization, than a small quantity of thick chlora-percha.—[International Dental Journal.]

TWO POINTS.—A neat little marker to use on broaches in measuring root-canals is the little round rubber waste made by using the punch on the rubber-dam. A broach will easily pierce the rubber, which can then be readily adjusted to any length. A practical point came to hand to-day that may some time be of use to some of your many readers. A young lad of tender years was taken by his mother to the dentist. He was very brave and talkative until seated in the operating chair preparatory to an examination, when he absolutely refused to open his mouth. After considerable persuasion on the part of the mother and the dentist, without avail, the mother, impatient with her offspring, grasped him by the nose, and shut off his supply of air until he was compelled to open his mouth.—[Dr. M. A. Mason, in Indiana Dental Journal.]

PAIN AFTER EXTRACTION.—Frequently after extraction a very severe pain remains, and innumerable remedies have been recommended as promising immediate relief, but either

of the following formula will give relief in the most stubborn cases :

Chloroform	
Alcohol.....aa	30 0
Aconite tinct.	
Morphin.....	0.4

Alcohol.....	30.0
Chloroform.....	60.0
Sulph-ether	22.0
Camphor.....	15.0
Opium tinct.....	4.0
Oil cloves.....	2 0

Menthol.....	4 0
Chloralhydrate.....	6.0
Camphor.....	2.0
Alcohol	30.0

Before using any of the above, it is best to flood the socket with warm water, then bathe wound and socket with the medicine.—[Dr. Cigrand in Dental Digest.

ARSENIC IN DENTAL OPERATIONS.—Prof. D'Argent, of Paris, gives some valuable suggestions regarding the use of arsenic in the devitalization of pulps. He has conducted a very careful investigation concerning the various effects of this powerful poison, and has come to the conclusion that the so-called nerve paste, as now in general use, is injurious to the tooth structure and its surrounding parts. However, when the arsenic is used in combination with drugs which limit its destructive action, it then becomes an excellent agent for destroying the pulp. His devitalizing paste consists of—

Arsenious acid.....	5
Eserin.....	2
Cocaine.....	2
Chloroform q. s. to a paste.	

Pastes which contain morphine, creosote or phenol cause great pain to the patient and often leave irritating results, but the paste above recommended gives rapid results and does not subject the patient to any suffering. The eserine (physostigmatic) or alkaloid of the calabar bean acts as a vaso-constrictor, and the cocaine aids in bringing about a painless devitalization.—Dental Digest.

News Miscellany.

SUED FOR RECOGNITION.—The Wisconsin Board of Medical Examiners refused to recognize the Milwaukee Medical College and School of Dentistry because it failed to comply with the State law by having all its students take three-year courses. Through a student who did take a three-years' course the faculty of the college began a suit to compel recognition. The Attorney-General has given an opinion favoring the college, saying "the mere fact that some person, by unusual attention to study or by adaptability to the work, is enabled to meet the requirements of the school in less time would not operate to take the college out of permission to have its certificates recognized by the board."

TOOTH MANUFACTURE.—About 4,000,000 false teeth are manufactured annually in the United States, while one ton of gold and three tons of silver and platinum, to the value of \$100,000, are used in filling teeth.

LEPERS.—The total number of lepers in the world is estimated at 2,000,000, of whom 5,000 are in Hawaii and the United States, 20,000 in Japan, 20,000 in Europe, 40,000 in Turkey, 130,000 in India, 300,000 in South America, and 500,000 in China.

THE CAP AND GOWN.—The custom of wearing caps and gowns on appropriate occasions is fast becoming fixed in the higher educational institutions of this country. It has passed the stage of student fad or ecclesiastical requirement, for it has been tried in our leading centers of higher education, and approved by both the esthetic and utilitarian sense. On its historic and picturesque side it serves to remind those who don it of the continuity and dignity of learning, and recalls the honored roll of English-speaking university men. On its democratic side it subdues the differences in taste, fashion, manners and wealth, and clothes all with the outward grace of equal fellowship; which has ever been claimed as an inner fact in the republic of learning. Hoods, for the most part, have been worn in this

untry by those receiving degrees from English universities. The code is a long one and differs in different British universities. The Bachelor hood is trimmed with white fur; the Oxford M.A. hood is lined with crimson silk; the Cambridge M.A., with white silk. The Oxford D.D. is of scarlet cloth, lined with black silk; the Cambridge D.D., of scarlet cloth, lined with pink silk; the Oxford D.C.L., or equivalent, LL.D., scarlet cloth, lined with crimson silk, and so on through the list. The gown uniforms a body of students, overcoming the nondescript dress of sometimes a very large number of men or women.—[T. J. Egan in The Ornithologist.

College Notes.

COLLEGE OF DENTISTRY COMMENCEMENT.

THE commencement exercises of the College of Dentistry, University of California, were held in the University hall, Berkeley, on Wednesday morning, May 18th, at 10 o'clock. The graduating class for '98 number forty-four, as follows:

Henry Graham Allen,
John Hugh Atkins,
Perley Bosworth Aiken,
Mabel Lucile Beers,
Jean Cline,
John Hill Cooper,
Homer Theodore Craig,
Charles Hall Du' Bois,
Andrew Lewis Edwards,
Weston Burgess Estes,
Hartley Williams Gottenberg,
Norman Sherwood Halsey,
William Daniel Henderson,
Andrew Jackson Hiniker,
Ira Loomis Hinckley,
Perley Centennial Jones,
Minnie Evangeline Jordon,
Charles Fisher Lemmon,
William Raymond Linscott,
Flora Mae MacDonald,
Louis Paul Mariotte,
Charles Luttrell McPike,

Hubert Oscar Francis Menton,
Charles Leonard Morey,
Frederick Bright Pearce,
Jerome Bonaparte Painter,
Helen Agnes Parker,
Armstrong Cooper Pratt,
Alfred Currie Rulofson Jr.,
George E. Schillig,
Franklin Trewick Scott,
Frank Convers Sellwood,
Ernest Kirkpatrick Sisson,
Thomas Martin Smith,
Walter Joseph Smyth,
Joseph Mehlert Stalder,
George Grant Stanford,
Charles Joy Stevens,
George Henry Stewart,
William Alfred Walden,
Frank Dilts Watkins,
Caleb Russell Wilcoxon,
Jean Irene Worthington,
George Henry Wymore.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

BUSINESS FOR THE STATE MEETING.

THE approaching regular meeting of the California State Dental Association to be held at San Jose, commencing Tuesday, June 21st, makes pertinent a consideration of its work at this time.

Judging from the replies now received by the chairman of the Program Committee to invitations issued by him asking members of the profession for contributions, a most interesting and instructive session may be anticipated.

While all due attention is asked and expected for the papers upon various subjects, old and new, which will be presented, we would most earnestly ask a careful consideration of the question of securing a better State dental law than now exists.

The present law has done good service in the past, perhaps, and may rank fairly well as compared with similar laws in other States, but it is not up to date, and does not give the profession that protection which it must have if it is to maintain its integrity and keep abreast of the times in the daily more-exacting though improved conditions governing all liberal professions. We have said before now that it is impossible to make men good by legislation, but a profession like dentistry or medicine may be so protected by properly framed and enacted laws as to prevent to a large extent the incursions into its ranks of incompetent, inadequately educated or quackish practitioners who bring upon the profession they *misrepresent* only the derision and scorn of the public, and practice upon the people an

imposition they bear only through a combination of good nature and ignorance.

We have said "there is no just reason under heaven why an ignorant man or woman should be graduated from a dental college," and we go further now and say: there is no conceivable reason why an ignorant or incompetent person should be allowed to practice dentistry in the State of California or anywhere else.

If all students desiring to pass the State Board of Dental Examiners were compelled to serve a three- or four-years' apprenticeship with a reputable dentist before being allowed to come up for examination; if the members of the State Board of Examiners were always men of known integrity and ability, and selected from a list of candidates endorsed by the State Dental Association, and, finally, if every graduate of the dental colleges in this State was obliged to pass an examination before the Board before being granted a certificate to practice, it is our opinion that the profession of dentistry in no State or country would be looked upon with more deserved esteem and commendation than in our own State.

We bring up these points merely as suggestions for the consideration of the members of the Association at its next session. The time for considering this matter is upon us, and the sooner it is taken up and wisely and ably disposed of the better, both for the public and the profession.

Attention is directed to another article in this issue wherein is advised the appointment of delegates by each dental organization in the State to form a committee to meet during the session of the State Association for the consideration of this matter, and urge upon the Association whatever action seems necessary and best.

Unless action is taken now and the matter brought up in the next session of the legislature, which convenes in January, 1899, we must wait for two years more before anything can be done. Therefore, action is urged at once.

We would suggest to such a committee, if it is formed that the laws recently enacted in other States be made a

matter of special study in order that their good features may serve as a guide, and their defects as a warning to those to whom may be assigned the task of framing a new law.

DENTAL LAW AMENDMENT.

HAVING received correspondence from different sections of the State, from which it seems that in consideration of some change in the present State dental law is demanded the GAZETTE publishes the following notice as presenting a possible way of accomplishing the desired result:

TO LOCAL DENTAL SOCIETIES.

As it is deemed advisable to consider a change in our State dental law at the next session of the State Dental Association, and as it seems that such a movement may best be put in operation by a properly appointed committee, it is asked that each dental organization in the State having twenty active members or less elect or appoint *one* delegate to such a committee, and that each association of more than twenty active members elect or appoint one delegate for each twenty members. These delegates to meet during the session of the State Association, and devise ways and means for bringing the matter properly before the State Dental Association. Fraternally,

FRANK L. PLATT, D.D.S.,
85 Flood Building, San Francisco, Cal.

NOTES.

THE Stomatological Society of San Jose is the latest association formed to promote the standard of dentistry in California. San Jose has now two dental societies.

SEVERAL young men of this city ambitious of military glory, although otherwise up to the physical standard, to their surprise and disgust, have been refused permission to serve Uncle Sam because of having defective and missing teeth. Popular education in dental hygiene receives an additional argument.

DR. A. C. CAMERON, of Hanford, Cal., reports a peculiar accident as happening while using a local anesthesia containing atropine: a fine spray of the anesthesia being forced backward beside the needle and striking him in the eyes. As atropine causes a sudden dialation of the pupil the Doctor was obliged to stop work until the effect of the atropine passed away and normal vision was restored.

PERSONAL.

DR. MAXIMO STERN of Quezaltenango, Guatemala, C. A., is in the city during the early part of the month. The doctor is on his way to Europe for rest and recreation.

DR. GEORGE H. CUSHING, one of the most eminent of Chicago's dentists, both for his professional and associational work, has located his home at Fairmount, Los Angeles county, California. Dr. Cushing was a resident of Chicago forty-one years.

DR. THOS. MORFFEY has moved his office to the new Examiner building, where in association with Dr. Peel he occupies a handsome suite of rooms.

DR. CHARLES BOXTON, Dean of the Dental Department of the College of Physicians and Surgeons, was among the first to respond to Uncle Sam's call for volunteers for service in the Philippines. As Major of the First Regiment, N. G. C., which he had been a member for fourteen years, Dr. Borton felt that, notwithstanding the eminent position he had attained as an instructor and practitioner in his profession, in addition to his much-appreciated work as head of a dental school, his path lay in the line of patriotic duty. The great popularity of the Doctor with the faculty and students was attested in several ways prior to his departure—notably at a banquet and sword presentation. As a soldier, Major Borton has all the qualities to inspire confidence and valor in those he leads. His associates of the faculty as well as the students pray for his safe and early return.

Publisher's Notes.

MEETING NOTICES.

MEETING OF CALIFORNIA STATE DENTAL ASSOCIATION.

IN preparing for the twenty-seventh annual meeting of the California State Dental Association, to be held in San Jose, commencing Tuesday, the 21st, at 11 o'clock A.M., and continuing four days, it is stated with assurance that the various committees are actively at work in their efforts to make this one of the best meetings in the history of the organization. The Committee on Local Arrangements announce that it has secured

the Assembly hall of the Hotel Vendome for the use of the Association, where all the sessions and clinics will be held. There will be provided plenty of chairs, electric engines, motors and lathes, with batteries to run the same, making an equipment equal to a modern dental office, which should insure clinics of especial interest.

Special reduced rates throughout the hotel (of \$2.50 per day upward) have been secured at this elegant hostelry, and the Local Arrangements Committee, in co-operation with the profession of San Jose, will see that San Jose's reputation for hospitality does not suffer (a peep through the great telescope at Mt. Hamilton and other social functions being hinted at), and they will be glad to welcome every dentist in California to the Garden City.

Upon application to the Secretary, a certificate entitling holder to a two third rate fare to the meeting can be had. As many tickets as may be wanted can be purchased on each certificate, and they be bought via San Francisco. Unless fifty tickets are used, the rebate rate will not be available, therefore it is desired that all should use them.

Fraternally yours,

W. Z. KING, Secretary.

RUSSELL H. COOL, President.

MEETING OF NATIONAL DENTAL ASSOCIATION.

THE next annual meeting of the National Dental Association will be held in Omaha, commencing on Tuesday, August 30, 1898.

Attention is called to the fact that all who were members of the American Dental Association and of the Southern Dental Association at the time of the formation of the National Dental Association, are now members of the latter organization.

The Constitution, Article III, Section 5, provides as follows:

"It is hereby specially provided that all persons at present permanent members of the American Dental Association and of the Southern Dental Association are permanent members of this Association, and entitled to all the privileges of the class to which they belonged without further action, and the Treasurer is hereby directed to transcribe their names upon the roll of membership of this Association."

The officers of the National Dental Association will leave nothing undone to make the meeting at Omaha a success, and they hope the attendance and interest in the first active annual meeting of the Association will be commensurate with its importance. By order of

THOMAS FILLEBROWN, President.

EMMA FAMES CHASE, Cor. Secretary.

COLORADO STATE DENTAL ASSOCIATION MEETING.

THE twelfth annual meeting of the Colorado State Dental Association will be held in Denver, June 7th, 8th, 9th and 10th, in connection with the Stomatological Section of the American Medical Association.

An excellent programme is assured. Those attending may avail themselves of reduced railroad rates. A cordial invitation is extended to all members of the profession.

ARTHUR C. WATSON,

Masonic Temple, Denver, Colo.

Chairman Executive Committee.

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Original Papers.

OUR INSTRUMENTS.

BY B. C. BOESEKE, D.D.S., SAN FRANCISCO.

[Read before the San Francisco Dental Association, March 14, 1898.]

THE subject of our instruments is one that is not taught to any extent in our colleges, nor is it often spoken of or written upon by the profession, so that what little knowledge we acquire of it is through our own experience. I give it to be of such importance that it should find a place in the curriculum of every college, for it gives a mechanical training which cannot be acquired in any other

college they teach us how gold, silver, platinum, etc., are refined and prepared for our use, either in the pure state or as alloys, but what do they tell us of steel, which we use more than any of the other metals? We are simply told that steel becomes hard and brittle when heated to redness and suddenly cooled by plunging it into cold water; and becomes soft again by reheating; but they do not tell us what degree of heat is most conducive to the best results.

Steel is manufactured by heating bars of wrought iron to redness in contact with charcoal, which causes it to become fine-grained, instead of fibrous, and more malleable and fusible; this is then melted and cast into bars or rods. The best steel we have for instrument-making is Stubbs.

A good rule to follow in working this metal, either in casting or forging, is to work it at as low heat as possible,

NOTE.—The editors and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

annealing often, and never heating above a cherry red. Be careful not to do as I once saw an instructor do at a clinic, that is, heat the instrument which you are making to almost a white heat, and then let it cool and try to bend it, for you will break it almost every time.

After filing your steel down to the required thickness, polish it, then decide where and how you want to bend it. Heat and bend while it is still hot, using a copper or brass hammer, which will not dent the steel as much as a steel one. Now, after you have it in the required shape, polish out any hammer marks that might be on it, and you are ready to temper. To do this you first coat the instrument with a layer of wet salt and dry it on; this will prevent any scaling, bring your oil or water near to your gas flame. If the instrument is small it is best to hold the burner so that the flame is just over the water, for, if you have the flame away from your cooling fluid, in bringing the instrument to it it loses some of the heat, and your temper will not be as good. Having everything in readiness, heat to a cherry red and suddenly plunge into water. Then polish, being careful not to break the point, which is very brittle; draw the temper by heating quite a distance from the point, using a small flame, watching the colors carefully, so that you will have a straw color at the cutting edge, and blue color at the point where the greatest strain comes; this being a spring temper will lessen the liability of breakage.

When the temper is drawn sufficiently, plunge into cold water and give a final polish, which is easily done by having leather wheels or buffs, five or six inches in diameter mounted on the lathe, using on them a combination of paraffine and emery powder; finish with crocus or rouge. A great deal depends upon this polish, for the finer it is the easier it will be to keep the instrument clean and in an aseptic condition. This should not be overlooked, for after every operation every instrument we have used should be cleaned and sterilized. There are many ways of doing this, either by dry heat or antiseptic solutions. I find a

solution of lysol, which is a good antiseptic, works well and does not rust.

At every clinic which I have witnessed there has been one very essential thing lacking—an oilstone, on which to sharpen excavators, chisels, etc.; this may have been due to the cavities having been partly prepared before the clinic. In mentioning this I wish to impress upon you the importance of keeping your instruments sharp, as it will enable you to do better and quicker work, and with less pain to your patient.

DISCUSSION.

Dr. J. D. Hodgen said that for several reasons he was glad to have heard a paper of the character presented; first, because it is necessary to understand our instruments; second, because the reader had been one of his pupils in the College of Dentistry. However, since the reader had graduated the course in metallurgy had been improved. The essayist had done beautiful work at college, and his paper was marred only by its brevity. Nothing can be more advantageous to an operator than the ability to make a desired instrument. As a visitor to the dental manufacturing works of the S. S. White Co. the speaker had been informed that there were men employed there who had spent years in learning how to temper instruments.

In the matter of annealing an instrument, cool water is better than cold. The main point in drawing an instrument is to draw its edge. The usual manner of drawing the temperament is frequently a matter of chance. Sometimes you will purchase for 75 cents a razor possessing a well-tempered edge; then again you may pay five dollars and not procure an equally as good instrument, which goes to show how much depends on the method of tempering.

Dr. L. Van Orden related that as a student in the office of a pioneer practitioner of San Francisco he had seen instruments manufactured that stood without any superior. The dentist referred to was especially given to the employment of oxgall in tempering his instruments. He had a

large tray of instruments, all made and tempered by himself. This gentleman was an enthusiast in his professional work, which was always most thorough. The speaker said it was truly remarkable what scientific manufacturing skill was exhibited by the scientific dentists of thirty-five and forty years ago.

Dr. C. H. Bowman remarked that the suggestion to always have an oilstone at hand on which to sharpen instruments was a good one; he had while at college acquired the habit of using one.

Dr. W. Z. King said that among the first things that he had learned to do on entering a dental office was how to temper and distemper steel. He was glad to know that such instruction was now a part of dental college education.

SOME PRACTICAL SUGGESTIONS.

BY DR. R. W. MEEK, OAKLAND, CAL.

[Read before the Oakland Dental Club, June 1, 1898.]

WHILE we professionally hail with delight every new thought for scientific advancement, and honor and revere the men who spend their lives in the study of subjects for the benefit of humanity, we must at times consider the matters which enter into our every-day work and contribute so much to the successful practice of dentistry.

The surroundings of the dentist should be in keeping with his profession. I do not advocate the luxurious, but rather the neatly furnished and well-equipped office, free as possible of disagreeable odors, with well-selected implements, well-polished and thoroughly disinfected.

Patients should be received in a cordial manner and made to feel that their welfare is placed in charge of one who is a friend. There should be no discrimination between the rich and the poor so far as reception and operations are concerned. Undue haste and infliction of pain should be considerably avoided.

Endeavor to see all patients upon their entry at once; make all appointments yourself, and not through an assist-

ant. Human nature is such that people are better satisfied to have your personal attention in such matters. Although some patients are willing to pay their fees to your assistant, yet, while it is a tax upon the time of a busy dentist, it pays to personally thank them for their favors.

We meet in daily practice a great variety of cavities, from the simplest to the most complex, and while we are very apt to pass at times small and apparently insignificant pinhead holes, the greatest care and judgment should be exercised at every step in the process of filling teeth. Crown cavities in molars are probably the most simple, and yet how difficult of proper preparation, where deep fissures extend from buccal to lingual side, and from anterior to posterior surfaces; yet how very essential it is for durable work that we should follow up such a fissure to its extremity, no matter where it leads to or how much pain is inflicted, and not stop at the little spot of soft decay in the center of crown. For this work I have found the Arthur corundum disk to be the quickest and most painless instrument to use, and it should be mounted on right-angle as well as straight mandrels.

In all approximal cavities the first and most important thing is space, then chiseling away enamel to admit burs and excavators. You should not hesitate to cut away tooth-structure to gain access and a good view, which will enable you to properly manipulate the material, especially gold.

In the preparation of all cavities it is well to observe the well-known maxim "Extension for prevention," and do not hesitate to remove all overhanging walls of enamel, and have the same well supported by the bone of the tooth before proceeding with the fillings. It often necessitates the exposure of unsightly gold fillings and amalgam, if you please, but prefer rather to see the gold and whatever material you may use than to have your patient return in a short time with a recurrence of decay.

In approximal cavities, both in anterior and posterior teeth, I favor the use of the corundum stone and sand paper disks in preference to the chisel in shaping and finish-

ing marginal walls. Their use obviates the force required by the chisel, and does away entirely with the danger of fracture of enamel.

As to the manipulation of cohesive gold, although a rule has been laid down, and the same dwelt upon that gold used in undercuts should not be annealed or malleted, I say: Anneal and mallet, and be assured that it is just as essential that the gold used there should be just as cohesive and well condensed as elsewhere, but certainly do not use the same force in condensing. It has been my custom to fill all undercuts first, and then proceed with the body of the filling.

I am not an advocate of heavy malleting, but rather much malleting, using at all stages of the work fine plugger points, finishing surface with foot points after thorough condensation with fine points.

Being an advocate of fine plugger points, I also favor the use of small cylinders, being convinced that much of the pitting complained of is due largely to the size of cylinders used and careless work. Another point against the use of too large a piece is the amount of force required to weld it. Surely the better plan is to work gold in small pieces with small points. The tooth is spared both jar and strain, and cracking of enamel is avoided. In my opinion it is not the brand of gold used so much as it is the method or lack of thoroughness of manipulation that contributes to success or failure. I have used continuously for eighteen years one brand of gold, and recently had the pleasure of seeing large restoration fillings in the anterior teeth in perfect condition after fourteen years of service.

In the use of amalgam just as thorough work is necessary, both in the preparation of the cavity and in the manipulation of material. I have heard it said that it is not as essential that overhanging edges of enamel be cut away; but I insist that if it be cut for any material it should be for amalgam. As you well know, amalgam shrinks or expands, as the case may be, and, if the enamel is not supported, you find, where the shrinkage takes place, that

pping of enamel, and consequent leakages and subsequent failure.

have for a number of years been much gratified with results obtained from the combination of amalgam with cement, working the alloy into the cement while quite soft, being careful to thoroughly cleanse the edges of the cavity for first step, and then finish with fresh mix, and that is hard. I have found less shrinkage, and, in deep-set cavities less liability to thermal shock. All amalgam fillings should be finished next day or as soon as possible; they last better and look better.

Of cement, I will say that it has its sphere. It is of special value in children's teeth, where but little preparation is possible, and in the mouths of delicate people where protracted operations are inadmissible it serves an excellent purpose and lasts well. Cement has the effect of densifying the walls of a cavity, and thus greatly improving the texture of the tooth. Soft teeth should be subjected to such treatment before attempting to fill with gold.

SPECIALISM ESSENTIAL TO SUCCESS.

BY ALLEN H. SUGGETT, D.D.S., MARYSVILLE, CAL.

[Abstract of address to Class of '97, College of Dentistry, University of California.]

SOME one has said that genius is only an infinite capacity for hard work and an unwearied attention to detail. While some of us may not agree with this sentiment and may not believe in the divine spark, which is a gift to the favored few, we all know that it is persevering work that is the necessary power in the accomplishment of any purpose. Perhaps in no profession is careful work and exact attention to detail so important as in ours.

It is a law of nature that all things change. Nothing is the same today that it was yesterday. Nothing will be tomorrow as it is today. So, you will find it in your professional life. Tomorrow you may be a better workman than

you are today, or you may be a poorer. It depends upon yourself.

Don't be afraid of learning too much. We see gray hairs and bended heads, but seldom from the strain of study or the weight of learning.

Keep in step with the highest professional thought. It is placed easily within the reach of all, through our periodicals and by means of the annual meetings of the local dental associations, where we have an opportunity for mutual help and interchange of ideas. This is important. It keeps us out of ruts. It helps us to take a broader view of our work, and often furnishes us with ideas that may prove to be of the utmost importance in our work.

We are living in the age of the specialist. The day has passed when you could be a blacksmith and a dentist also.

Today you must be one thing and that thing well.

You have received a careful special education, and a specialist you must always be. But do not be only a specialist; be something more, be broad in thought.

It is an old and hackneyed saying, but one having much of wisdom: "Know something of everything and everything of something." If you are an earnest student in your profession, you will need to watch yourself that you pay sufficient attention to this "something of everything."

Don't be narrow. Don't think dentistry all the time. Be broad in your thoughts, in your interest, in your knowledge; for, aside from the symmetrical development of your character, it is necessary to your success.

The profession of dentistry has some phases peculiar to itself. It requires so much more than a mere technical education; it requires an almost superhuman power of adaptiveness. In the same day you may be the companion and sole entertainer of doctor, lawyer, schoolgirl, farmer and housewife. You must interest these people. You must while away as best you can the hours of tedious operation. This requires great tact and a close study of human nature. What would divert or interest one patient would annoy another. So a dentist who is quick to per-

ceive or anticipate the tastes of his patients, will soon find that this quality attracts patients when better operators, perhaps, have failed to please. The best of education, the widest interest will serve you best in this respect. If you have something worth saying to your patient, it will serve you better than platitudes concerning the weather. People are certainly attracted by minor things. A pleasant attractive office, cleanliness and order are not incidentals, they are essentials.

Selections.

THE RELATIONSHIP OF OTOTOLOGY TO DENTISTRY.

BY ROY S. COPELAND M.D.

[Abstract of lecture before the University of Michigan Dental Society, March 26, 1898.]

WHAT I shall say will relate more to the kinship of the dentist and otologist than of the dentist and ophthalmologist. When we consider the sympathetic nervous relationship existing between the ears and the mouth and the teeth it is not difficult to perceive that irritation from the latter would be a constant menace to the organs of hearing.

Not only shall I give you some results of my own experience along this line, but I shall avail myself of whatever I have found of value in the authorities bearing upon the subject. My special thanks are due to Dr. Colles, of New York, who has written much on the effects upon the ear of dental diseases. I shall take the liberty of quoting extensively from his able articles. In view of the importance I have myself for years placed upon dental reflexes, I am surprised that more has not been written about them.

The sympathetic nervous system is but a part of the general nervous system, and not, as we old fogies of last year supposed, a separate system, possessing governing power independent of the cerebro-spinal axis.

This new truth in science has led some man, bolder than his fellows, to declare that the *reflex is an absurdity*. This

doctor declares that there is no such thing. If he is right, and the laity discover the truth, you and I will need to change occupations. There will then certainly be a kinship of the ophthalmologist, the otologist and the dentist, for there is one maxim so thoroughly demonstrated that it can never be overthrown. That is: "Misery loves company."

A few weeks ago the profession awakened to the knowledge that the human stomach is not necessary to human life. It has been forced upon us that the stomach is not a *vital* organ—it's simply a *victual* organ. The fact that the patient in this case was a woman leads some to doubt the validity of the discovery. It is held by many that a *male* human could not long survive the removal of an organ of such traditional value! However, we are once more in the realm of pure theory.

The subject of dental irritation in its effects upon the ear in causing and influencing the course of diseases of this delicate organ, is one which has excited much interest and considerable investigation among the more progressive aural surgeons of the day. Colles calls attention to the fact that many otologists and most practitioners of our profession have failed to give the subject the attention it deserves, and also to recognize the importance of oral irritation in the therapeutics of ear diseases. He speaks of the sympathetic nervous relationship existing between the ears and the mouth and the teeth, and says it is not difficult to perceive that irritation from the latter would be a constant menace to the organs of hearing. The sympathetic relationship between other parts of the body and the ears has long been known, and the influence exercised by diseases of such on the latter organs has been frequently observed and described in the older text-books. The fact, moreover, that under certain conditions of the system, irritation of the ear in various ways, such as the introduction of instruments into the external auditory canal, etc., will excite various reflex phenomena, as sneezing, coughing, and an impulse to swallow, has also long been recognized. This is a matter

easy to understand, Colles says, when we consider the anatomical relationship of these parts through their nervous connections. That dentition, the difficult eruption of the deciduous teeth especially, the existence of decayed or otherwise diseased teeth, the wearing of badly fitting artificial dental plates, etc., should frequently excite a reflex disturbance in the organs of hearing, is therefore not difficult to explain.

In 1856 Rau called attention to the fact that dentition in young children generally causes more or less irritation in the external auditory canal, and such writers as Sexton and J. H. Burnett have published the results of their careful observations concerning the effects of oral irritation on the ear.

Woakes emphasized strongly the importance of an early recognition of earache in infants, excited by reflex irritation due to teething. Such pain in the ear would, if recognized early enough, be quickly relieved in most cases by free incision into the gums. It happens, however, very often; according to this writer, that the congestion in the deeper-seated tissues of the ear goes on to suppuration before the aural trouble becomes apparent. The danger of not recognizing the aural symptoms in such cases, says Woakes, is very great, since invasion of the brain is extremely liable to occur. In my judgment most of the cases of death from so-called "teething" are due to meningitis, extending from an otitis, which in itself may be caused by the primary dental trouble.

Owing to the intricate nervous connections, the ear is brought into sympathetic relationship with disturbances arising in various organs of the body, such as the heart, stomach, genito-urinary system, brain, etc. Furthermore, the teeth, the soft palate, and the membrane lining the oral, nasal, and pharyngeal cavities, are thereby in direct relationship with the drumhead, the tensor tympani muscle, the lining membrane of the tympanic cavity, and the external auditory canal.

In a review of the records of some eighteen hundred

cases of ear disease coming under his observations, Sexton found that fully one-third of them originated in, or were more or less prolonged, by a diseased condition of the teeth, and in most instances the ear affections were especially severe. The male sex was in excess of the female, though not much, and in both men and women the greater number were affected between the twenty-first and fortieth years. It is interesting to note that the chronic ear affections greatly exceeded in number the acute forms; for example, there were 688 cases of chronic catarrhal middle ear inflammation against 126 cases of the acute and sub-acute form, and 427 cases of chronic purulent middle-ear inflammation against 239 of the acute or sub-acute variety. In these cases the presence of dead teeth, concealed roots, left either on extraction or after decay of the rest of the tooth, was always ascertained, and their damaging effect on the condition of the gums, nose and throat, as well as on the ears, carefully noted.

Among other causes of irritation from dental sources, Colles calls attention to the various artificial means of preserving the teeth when decayed or of replacing them by false ones, and calls special attention to the danger from artificial plates and the constitutional effects of the vulcanite. Of the numerous substances used for filling the cavities in decayed teeth, this writer considers the amalgam composed of tin and of silver, with mercury enough to cause adherence of the mass, as by far the most harmful in its results. This mercury is frequently set free, owing to the oxidation of the mass, from exposure and friction of the mouth in mastication, movement of the tongue, cheeks, etc., and is, therefore, likely to produce toxic effects. Cavities in carious teeth are often insufficiently cleansed of decayed matter before fillings are introduced, and are thus sources of constant pain and irritation. Again, unless properly prepared, the mounting of artificial crowns on the roots of teeth, partially destroyed from various causes, is a possible source of irritation.

I need not tell you that care and cleanliness of the mouth

should be urged in all cases, not only for the reasons which dentists usually advise but also because such measures are conservative of *general health*.

I make it a practice to send my patients to the dentist, and, in my teaching, frequently call attention to the wonderful progress made by your profession, pointing to the growing infrequency of certain aural diseases as a reason for my confidence in dentistry.

It were carrying coals to Newcastle to tell you how necessary it is to keep the teeth in perfect condition. Your education has made you realize this fact, and within a few weeks another and, if possible, more potent reason, *the bread and butter problem*, will lead you to advance the idea in season, out of season.

The necessity of examining into the condition of the teeth in inflammation of the eyes is illustrated by many recorded cases. Herpes seems frequently to be dependent on dental irritation, as all the symptoms may disappear after the removal of a decayed molar. Panas observed a case of blindness, followed by death from purulent meningitis, secondary to dental caries. The inflammation extended to the maxillary sinus, then perforated the orbital wall, causing orbital phlegmon, and extended into the cranial cavity.

It is of frequent occurrence to find ocular disease or nasal disease secondary to dental lesions. This may be caused by the presence in the mouth of decayed stumps of teeth, inducing inflammation of the antrum and by extension reaching the other structures.

The man who can so readily adapt himself to a situation must belong to a profession equally ready to accept truth wherever it may be found. This leads me to say there is a possible field of usefulness in the relief of pain and in the cure of dental lesions by the employment of internally administered remedies.

Beside the *local* action upon the teeth of certain drugs, others, through the system, affect the dental tissues. For instance, for several years I have experimented more or

less on the possibility of the cure of cataract by the administration of remedies. I am convinced that this disease, or condition, is due to the excessive amount of lime salts taken into the system through the drinking water. To bear out the theory, which I must not now discuss at length, it may be said that in certain localities, cataract is almost unknown. In others, it is commonly met. More remarkable still is, that the localities where we find cataract are limestone districts. Take this country for instance. Doubtless you have noticed how impregnated with lime is the drinking water. Flirted from the finger tips upon a glass pitcher, this water will leave a limey spot where every drop rested. Therefore, we expect to find cataract more or less frequent in this locality and *we do*. In other districts, the Saginaw Valley for instance, where other salts, notably common salt, are plentifully found, and lime salts are absent, cataract is uncommon, and in my experience, has always been an imported article.

With this theory of cataract formation in mind, I was led to prescribe in a series of cases the fluoride of calcium. As you know, senile cataract is likely to attack both eyes. When ready for operation, I made the extraction in one eye and placed the patient upon a daily dose of the *calcareo fluoricum*. While the results are not flattering and are hardly worth mentioning, I am positive I found improvement in a few cases—in one quite marked.

Carrying the experiment further, I prescribed the same remedy in cases of congenital cataract. When the drug was continued for some time I invariably found a rapid and unaccountable giving away of the teeth. This must have been a more than a coincidence, for I have since compared notes with men who have observed the same thing.

It would be interesting to know whether or not this result is due to the direct appropriation by the teeth of the calcium salt or whether there is a tissue change from the *specific* action of the drug upon the dental structures.

If it is possible to carry this action to the point of breaking down of tissue, why may not drugs administered to a

point short of such destructive effect be used remedially? As a matter of fact they are. The literature of the school which I belong has many references to the relief and cure of dental diseases. Without further comment I commend to you at least a casual glance into the merits of internal medication—not to supplant your own excellent methods, but to assist you to still greater perfection in your treatment. * * *

I have been much interested recently in a little book written by Ranney, the great nervous specialist. It is called *Eye Strain in Health and Disease*."

To quote a few sentences from Ranney, he says: "Many diseases which are today commonly regarded as of bacterial origin owe their development, in my opinion, to some underlying cause that has impaired the nervous function, and thus rendered the patient peculiarly susceptible to deleterious atmospheric influences. * * * For many years I have carefully investigated the ocular conditions of every patient who had come to fear the dreaded advent of pulmonary consolidation and softening. I have not yet," Ranney continues, "encountered a case of typical *phthisis* in which eye strain did not exist as a factor (more or less potent, in my opinion, in causing and hastening its development)."

The writer goes on to say that had this factor been recognized early in life, before the eyes were employed in study and other occupations, and if all anomalies of refraction and muscular equilibrium had been thoroughly rectified at that time, many of the hopeless sufferers from *phthisis* could have escaped the disease.

I have quoted from this eminent authority to show you how prone we are, working in special lines, to overlook other organs quite as essential and important to good health. Indeed, the lesson to be learned is that perfect health depends upon perfect function, not of this organ or that, but of all organs.

For this reason I feel it is the duty of the physician to

freely consult with his professional brother, the dentist. Also it is the duty of the dentist to consult his colleague, the oculist, the aurist, the stomach specialist, or the general practitioner. Honesty and frankness between the members of two fraternities so closely allied, cannot but increase the percentage of our cures, and win the respect of a public which is as quick to applaud unity as it is to condemn division.—[Univ. of Mich. Dental Journal.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, MAY 17, 1898.

CLINIC.—D. D. Crowley, M.D., of Oakland, Cal. Demonstration of ligaturing and suturing.

a. Operation upon dog, showing methods of ligaturing blood vessels, Esmarc bandage, stopping hemorrhage by torsion, and the possibilities of extensive operations being performed bloodlessly by simple pressure of thumb. Also the use of needles in acupuncture.

b. Methods of suturing. Placed a Murphy button on the intestine, explaining the manner and theory of its use.

EXHIBIT CASE OF HARELIP. Dr. Crowley exhibited a patient, male, 20 years of age, upon whom he had recently performed a successful operation for the cure of congenital harelip.

Dr. Crowley spoke at some length upon the preparation of patient necessary for a surgical operation, including the preparation of patient previous to giving chloroform, stimulants to be used in case of accident, and the antiseptic precautions necessary for patient and operator.

Referring to the exhibit of harelip case, Dr. Crowley said: This lip was operated upon for the purpose of overcoming cleft when the patient was a child. The parts united partially, yet there was a considerable interval at the lower margin of the lip, exposing the teeth and producing a very unsightly deformity. Incisions through the lip were made in such a manner that the mucous membrane lining the cleft was not severed but brought down to the level of the rest of the labial margin. This forcing of these tissues

downward left an interval through the upper part of the lip. This was filled by the drawing of the surrounding tissues into place by means of sutures. An ordinary silver harelip pin was then placed in position to retain the parts properly, and remained in position for four days. Adhesive strips were also used to retain the parts and the dressing. In making incisions the coronary artery was cut, but hemorrhage was checked almost entirely by the placing of a pair of artery forceps on lip each side of the incision, first padding their blades with cotton, and producing pressure. No ligaturing was necessary for these arteries, as the mechanical approximation of the parts produced sufficient pressure to prevent subsequent bleeding. If there is any objection to the lip at present, it is a little too full at point operated upon, but, being a recent operation, in the course of a month or two the tissues will contract.

This patient has also a congenital cleft palate, but, as it would take several operations and considerable time in order to accomplish any good, I advised the wearing of an obturator.

No evening session.

MEETING OF TUESDAY, MAY 24, 1898.

At the afternoon session George L. Helms, M.D., was introduced and presented some interesting pathological conditions of the heart muscle, including microscopical specimens of same.

The Doctor spoke at considerable length upon the symptoms, differential diagnosis, prognosis and treatment of several of the heart lesions, laying special stress upon the element of danger which their presence insures while administering anesthetics.

MEETING OF TUESDAY, JUNE 7, 1898.

There being no clinic announced for this meeting, Dr. Russell H. Cool exhibited several outfits for sterilizing instruments, etc., especially demonstrating the method of using Schering's formalin sterilizer.

No evening session.

SAN FRANCISCO DENTAL ASSOCIATION.

At the afternoon session of the regular June meeting, held on Monday, the 13th, Dr. H. L. Seager enjoyed the pleasure of having placed in his mouth the first gold filling it had known. Rather remarkable to relate, there are some dentists who naturally possess a fine set of well-enameled teeth, and take some pride in and care of them, and Dr. Seager so rejoiceth.

Dr. Platt said he "just put in a restoration filling in a sixth-year molar, using gold," and he was sure the filling would "stick" if the patient would only remember to masticate on the other side of his mouth.

Dr. Seager, being proud of his first gold filling, and also because of the presumed agony he endured while having administered to him some of the "joy" he had unknowingly imparted to many a wincing patient (by the way, the Doctor's teeth are harder than extra-condensed sin), insisted on the clinician demonstrating to him on the blackboard just how that filling was anchored, as he proposed to masticate, triturate, objurgate, abominate and all and every other ate that occurred to him, without the risk of losing a celebrated make of gold-foil filling.

Dr. Platt, with a weary sigh that indicated he resented having a "charity" patient compel him to demonstrate the stability of a \$15 job, stepped to the board and diagramed it all out to the partial satisfaction of Dr. Seager, after which he resumed the chair and called "Next!" (order of business.)

Dr. L. Van Orden of the Room Committee, reported that the book-cases (or crates) for the library had arrived and would be in place by the next meeting.

One application for membership was received and referred.

Under new business, Dr. Seager raised the question as to the propriety of placing the usual permissible announcement on a placard to be placed in hotels, etc. Before reaching a conclusion in the matter, Dr. Seager and a num-

of other members of the Association related how an advertising man had endeavored to impress them into an advertising scheme by representing that his action had been sanctioned by the Association's officers. The president, vice-president and secretary had been proffered free advertising, presumably for their influential names.

On motion of Dr. Seager, it was carried, as the sense of the meeting, that no member give his professional card for announcement to any source other than a legitimately composed directory of general and known circulation.

A member requested that the postal-card notices of meetings be issued at least several days earlier than had been the custom, as many recently had only received them the same day of meeting.

On motion, it was ordered that dues do not accrue against the names of Drs. Charles Boston and Perkins during their absence in army service at the Philippines.

Dr. Platt called attention to the call for delegates to constitute a committee to urge upon the State Dental Association the necessity for amending the State dental law.

On motion, the chairman was authorized to name four members of the Association to represent it on such a committee.

On motion of Dr. Atwood, it was carried that a resolution embodying the remarks of Dr. Platt, be received and actioned by the Association, as in favor of amending the dental law.

Dr. H. D. Noble, as essayist for the evening, read a paper entitled "Naso-Pharyngeal Obstructions," which was illustrated by an exhibit of casts, polypi and fibroid growths, and also instruments for the removal of nasal and throat obstructions.

The discussion of the paper was deferred till the next meeting.

For the July meeting a paper will be read by Dr. R. E. Connell, and Dr. A. N. Copsey will execute a combination of the afternoon clinic.

OAKLAND DENTAL CLUB.

THE wisdom of local associations having a permanent meeting hall or room has been so clearly demonstrated in the case of the Oakland Dental Club that the successful result in this single instance is no longer an interrogative problem, for every meeting held in its fixed quarters has been excellently attended.

At the regular meeting of June 1st, after the reading and approval of the minutes, Dr. Lewis, chairman of the By-laws Committee, reported that with the preparation of a final provision, the laws would be ready for adoption and printing.

Secretary Chappel reported that three of the youngest members of the club, prompted by patriotism, had enlisted for war service in the hospital corps of the United States Volunteers, viz.: Dr. William Ludlow, Dr. H. P. Travers and Dr. G. F. Ames. The two first named are graduates of the University of California College of Dentistry, and the latter of a Philadelphia college.

On motion, the secretary was instructed to draft a letter conveying to these young gentlemen expressions of compliment and welfare greetings for the distinguishment they had conferred on the club and their fellow professionals of Oakland by their ready evincement of patriotism.

The remainder of the evening was consumed by the reading and discussion of the several pertinent points of a paper read by Dr. R. W. Meek on "Some Practical Suggestions" (which is printed at page 264 of this issue).

Dr. F. L. Platt, of San Francisco, was present as a visitor, and took the opportunity to call attention to a call for the appointment of delegates to a committee to urge upon the State Dental Association the consideration of formulating an amendment to the present State dental law.

On motion, it was carried that the Club nominate two delegates to the proposed committee; the President, Dr. Goddard, to be one, and the other an appointee by the chair.

The Club adjourned to meet in September.

DENTAL CONGRESS COMMITTEE MEETING.

THE regular meeting for June of the General Committee of the Pacific Coast Dental Congress was held at the meeting-room of the Oakland Dental Club, on Wednesday evening the 8th.

The proceedings of the special meeting of May 17th were carried in and ratified.

Communications were read from the managers of several of the leading hotels of Portland, submitting flat rates of \$3 per day to visitors to the Congress.

A design for a permanent badge-button was also submitted by a member of the committee. Action on same was carried.

On motion, Chairman Lewis and Frank C. Pague were instructed to draft a circular letter of information concerning the routes and rate of travel, program and attractions attending the Congress, which will be distributed throughout the Coast.

As per instruction at special meeting, Secretary Meek reported charges against two members of the Congress for violation of the code, and of having served copies of same on defendants. The charges, with certain tangible evidence, were referred to the Committee on Ethics for investigation. Final action on the completion of sub-committees was taken, and, on motion, Dr. H. L. Seager, of San Francisco, and W. J. Prather, of Fresno, were added to the Prosthetic Committee; Dr. E. E. Parks, of San Francisco, to the Operating, and Dr. Frank Burton, of Stockton, to Invitation and Membership Committee.

Adjourned to call of Chair.

APPRECIATION.—Never complain of the lack of appreciation until you have done something worthy of being appreciated. You hold others to this rule, for you will not respect and esteem them until they have given you proof that they are trustworthy. Remember, your self-conceit adds merit to your character.—[Ex.

Correspondence.

ELIGIBILITY TO NATIONAL DENTAL ASSOCIATION.

NATIONAL DENTAL ASSOCIATION—SOUTHERN BRANCH. }
CHARLOTTE, N. C., May 28, 1898. }

EDITOR PACIFIC MEDICO-DENTAL GAZETTE—*Dear Sir:* Kindly insert the following in your columns, for, judging from the letters received, it is evident that there should be a wider diffusion of information in the South regarding the National Dental Association and its branches.

In many of the States the law does not require a diploma as a prerequisite for license. These State societies which admit to membership all licensed practitioners, *regardless of diploma*, should, therefore, bear in mind that only their graduate members are entitled to election as delegates to the National Association and its branches. It should be made very clear that according to the Constitution these bodies accept as *new* members only *delegates* elected by ballot at a regular meeting of the *State societies*, and also that delegates must be *graduates* in dentistry, or have acquired the degree of M.D., or have entered the profession prior to September, 1875. The American and the Southern Dental Associations did also, it is true, require graduation as a prerequisite for membership, but, as they did not restrict their eligible applicants for membership to *elected delegates* from *State societies*, this feature should therefore be emphasized.

The requirements for membership in a branch of the National must necessarily be the same as in the National itself, as membership in the former confers membership in the latter. The above applies both to qualifications and to dues, which are \$5 in either case; but it should be borne in mind that if the dues are paid directly to the National treasurer this does not pay dues in the branch, but the payment of \$5 to the treasurer of the branch cancels all financial obligations to the National treasury for the ensuing meeting, because the branch forwards to the National treasurer *three-fifths* of the dues received. Payment of dues to the branch therefore insures for a *single fee double membership*, with all

the rights, privileges and benefits of *both* bodies, including the joint volume of Transactions.

By request of the President of the Southern Branch.

C. L. ALEXANDER,

Cor. Sec'y Southern Branch National Dental Association.

General Medical Miscellany.

TO REMOVE A CORN.—Soaking in hot water, or a poultice over night will soften the part and admit of its being dug or picked out with little pain. The corn plasters contain various softening agents, such as carbonate of potassium and acetic acid; most of them are probably harmless and often ineffectual.—[L. Duncan Bulkley.

FOR TIC DOULOUREUX.—

R Fluid extract black cohosh.....oz. iss
 Fluid extract gelsemium.....dr. iss
 Fluid extract valerian.....oz. i
 M. S. Oae teaspoonful every four hours.

OCULAR MUSCLES, INSUFFICIENCY OF.—Payne, in a paper, claims that where there is a tendency for the eyes to deviate in the vertical and horizontal meridians, there is a difference in the refraction of the eyes. A horizontal tendency only when the refraction is the same. When there is insufficiency of the oblique muscles there is a difference in the refraction of the two eyes.—[Med. Record.

ANTIDOTE FOR ARSENIC.—The following is a simple method of preparing hydrated oxide of iron, the antidote for arsenic, one of its chief advantages being that the ingredients are always easily obtained: Take muriate tincture iron, 4 ounces, and in a vessel of 12 ounces capacity mix with one drachm ammonia water; shake well, pour on a large, wet muslin drainer, wring out the water and alcohol and wash with fresh water. The stomach having been evacuated by emetics while the antidote is being prepared, give four fluid ounces at once, to be followed by an emetic; then give two ounces every 10 minutes.—[Squibb.

LARYNGEAL TUBERCULOSIS.—Moure (Bordeaux). Is treated by local applications of four to ten per cent. of carbolized glycerine followed by insufflation of iodoform. The forceps is used to remove granulations and local infiltrations. Lactic acid is not used. Intra-tracheal injections of oil with creosote or menthol are occasionally used. —[So. Cal. Prac.

COUGH MIXTURE.—(*Medico-Surgical Bulletin.*) A cough mixture much employed in the Roosevelt Hospital, New York City, is the following:

R Codeine.....4 gr
 Dil hydrocyanic acid.....45 drops.
 Ammonium chloride.....45 gr.
 Syrup wild cherry to make.....1½ fl. oz.
 Teaspoonful every three or four hours.

TO REMOVE FOREIGN BODY IN THE NOSE, URETHRA, ETC.—A simple arrangement with which to remove foreign bodies from small passages: A hole is bored in the end of a probe, and a thread fastened in it. This is then introduced into the passage and carefully pushed past the foreign body. The string being then held in one hand and the probe in the other the little whip thus forms a loop, with which the foreign body is easily withdrawn.—[So. Cal. Practitioner.

THE ACTION OF SALIVA ON BACTERIA.—Triolo (*Rev. d'Igiene e di Med. Prat.*, Naples) has reinvestigated the subject by new methods. Having first thoroughly disinfected the mouth with corrosive sublimate 1 in 1,000, or permanganate of potash, and then washed out with distilled water until no trace of the germicide could be detected, the saliva was taken fresh from the mouth, and its effect observed on various germ cultures. The result showed that the saliva possessed decided bactericidal properties, killing old cultures (five days) and diminishing the number of recent ones (eighteen hours). Saliva filtered (as in Sanarelli's experiments) has very little germicidal action. Very little difference was observed between parotid and submaxillary saliva as regards their action on germs. Indeed, the author believes that the chief germicidal action of the saliva must be attributed to the secretion of the muciparous glands of the mouth. A short bibliography is given.—[British Medical.

HEADACHE.—Headaches, if due to pelvic disturbances in the female, are usually located at the top of the head, and are accompanied by soreness of the scalp; if due to digestive disturbances, they are occipital or frontal; if to diseases of the pharynx, they involve the entire vault, as though the pharynx were expanded and extended upward; if due to migraine, they are usually one-sided, local and accompanied by soreness at the supra-orbital foramen; if to eye strain, generally superciliary or frontal, sometimes occipital; if to disease of the nares, between the eyes and extending backward.—[Dercum in Med. Record.]

MORE LUNG-PLAY AND LESS MUSCLE-BUILDING.—What a man of to-day needs most is not athletics in a gymnasium, but plenty of fresh air in his lungs. Instead of a quantity of violent exercise that leaves him weak for several hours afterward, he needs to learn to breathe right, stand right and sit right. The young man or young woman who starts on a career of training and keeps it up year after year, just at the time when the body has a great deal of its own natural work to do and wants to do it, may make up his or her mind that, beyond a showy and superficial development of muscle and strength, all this training is going to count against them in after life.—[Annals of Hygiene.]

INDIVIDUALITY A FACTOR IN BIRTH RATES.—Dr. D. G. Brin-
ton, once editor of *Med. and Surg. Reporter*, in a recent article in *Science*, commenting on the diminished birth-rate of New England, concludes that the chief cause is the principle of democracy, which contains a toxic principle. The more intense republican civilization, the more acute becomes individualism, or the overpowering desire to live to the best personal advantage, and to get all the good there is going, be it in the sphere of intellect or other gratification. Both the numeric increase of the race is and must be inversely to the effort of the individual to develop himself personally. There may, however, be a democracy directed by science which can escape this poison. With this cheering but vague information the article closes.—[Southern California Practitioner.]

REST IN THE OPEN AIR.—Dr. Oakum S. Payne is a great believer in rest, and thinks that next to sleep the most beneficial kind of rest may be taken in the open air. How rest should be taken depends entirely on the person who is wanting the rest. If a busy man can sit still for a few minutes at odd intervals during the day, and put away all thoughts of business, and just dream for a few minutes, he will find that he will be greatly refreshed by so doing. There can be no stated time to take rest. One should never get so tired as to be compelled to take rest; as if the rest was taken judiciously and at certain intervals, one would never get so tired as to go away for rest. Literary men, or men who do a great deal of brain work, require a great deal more rest than manual laborers. Physical workers only get their muscles tired. The muscles are much more easily rested than the brain is. Brain workers should take their rest in the open air. Any change of thought is a rest to a brain worker, and after he has been studying hard and exercising his brain to any extent a walk or a ride in the country will be the greatest possible rest that he could have.—[Family Doctor.

SUPPRESSING IRREGULAR MEDICAL PRACTICE—A NICE LEGAL POINT.—The Medical Syndicate of the Southeast (France), wishing to convict a curate healer of unlawfully practicing medicine, sent to the said curate two men, who on several occasions presented themselves at his consulting rooms. They were examined by the curate, who subjected them to auscultation and percussion, and gave them a prescription, for which they paid him each time two francs. Fortified with this testimony, the Syndicate prosecuted the curate. The decision of the court was that the accused had instituted medical treatment in the case of the witness, but that as neither the one nor the other had really been sick, the curate could not be charged with illegal practice of medicine; in consequence "of one of the elements of the misdemeanor—namely, a disease—not being in evidence, the infringement with which the curate had been charged could not have been accomplished, for lack of an object." Upon this the curate, who was convicted of hav-

ing practiced medicine illegally, but in this particular case of having made use of it without practicing it because the subject was not diseased, was acquitted.—[New York Medical Journal.

CONTROL OF NASAL HEMORRHAGE.—Gleason has for a number of years packed the nose with lint saturated with oil of vaseline, but for the past year or two has given the preference to hydrogen peroxide. To the efficacy of the two means used the editor can strongly testify. Gleason's method is to take a strip of lint or muslin (gauze or candle wicking is better) one and a half inches wide and eighteen inches long, saturate it and fold near one end over a probe and push it through the bleeding nostril to the pharynx and withdraw the probe. The nose and pharynx are now occupied by a sort of a bag, while the short and long ends of the strip of lint project from the anterior naris. The short end should be next to the septum as the bleeding is probably from one of the septal vessels. The long end of the strip is then folded near the ala naris over the probe and the loop carried into the bag within the nose and pharynx which is gradually filled with loops of the strip of lint, thrust firmly into it by means of the probe. The lint can be gradually removed, leaving the last to be removed the second or third day. Leave the packing in at least twenty-four hours in severe bleeding before touching it. The patient must not touch the nose.—[Laryngoscope.

THE CHIN AS INDICATIVE OF CHARACTER.—Protruding chins characterize men and women of the get-there type. Successful people usually carry their chins thrust forward with compressed lips. This chin, if heavy, with broad rami and swelling masseters, indicates fighting blood.

A retreating chin shows lack of force—mentally, morally and physically. Usually of the sweet, yielding sort; soon discouraged; desire protection; small executive force. The development of other faculties often makes up for this defect.

A small, well-rounded chin, with a mobile and red cushion of flesh on it, indicates a pleasure-loving owner. If dim-

pled, all the more so, for dimpled chins belong to coquets. People with dimples love to be petted and loved ; like admiration and praise ; generally fickle. Usually this chin is healthy, recuperative and long-lived.

Broad chins signify nobleness and large dignity, unless vertically thin, when, if with it there be thin lips of bloodless kind, you find cruelty.

Square chins with little flesh denote firmness and executive ability. These make good haters.

Drunkards usually have a circular line about their chins.

Slovens have wrinkles about their chins.

Long, thin chins are poetic, unstable and delicate in constitution. Such people are subject to bowel derangements. If thin through the angles of the mouth, too, they are prone to tuberculosis. Generally short-lived.

Medium chins with a suggestive bifurcation in the center, with small mounds of flesh on either side, characterize generosity, impulsiveness, cheery natures. The same sized chins, with a dab of flesh just under the center of the lower lip, indicate meanness, selfishness, brutality.

N. B.—No one feature can be taken in judging character. Often development of other faculties of mind or feature entirely govern. In each case take the "totality of indications" before judging.—[Dr. E. Crutchen, in Med. Council.

ESOPHAGOTOMY FOR THE REMOVAL OF A PLATE OF TEETH AFTER PERFORMING A THYROIDECTOMY.—(By Alexander Hugh Ferguson, M.D., C.M., Chicago, Ill.)—On the 11th of October, 1895, Mrs. Lizzie Miller, aged 36 years, a widow, presented herself at the Post-Graduate Hospital, stating that her plate of teeth was lodged in her throat, and had been there for ten days, during which time she had been in Cook County Hospital under the care of one of the irregular attendants.

Condition on Admission.—The facial expression was anxious, eyes sunken, and mouth and tongue parched. She had a very large goitre extending upwards and to the left, to the angle of the jaw, backwards and outwards underneath the sterno-mastoid muscle, and downwards behind the upper portion of the sternum. The central lobe was quite prominent, and had given rise to difficult breathing, especially

When she went upstairs rapidly, and, too, during any unusual exertion. The thyroid enlargement was of sixteen years' standing, and was extremely firm and hard to the touch. It had been treated for many years by local applications, and internal medication. She spoke in a hoarse whisper with some difficulty, and any attempt at swallowing, even of water, which was the liquid I gave her, brought on a violent fit of coughing, and a regurgitation of the water. Paroxysms of dyspnea came and went, even when not provoked by attempts at swallowing. She was fairly exhausted from hunger, thirst and lack of sleep. She complained of being faint and weak.

The presence of the goitre prevented any possibility of an external examination of the esophagus, but pressure on the goitre caused pain in the neck below the larynx. I did not feel justified in passing a bougie until I was prepared to do what operation might be necessary; consequently she was left alone until the next morning, with instructions to give her rectal alimentation every three hours, and as much as possible.

Operation.—On the 12th of October, 1895, I removed the goitre first, and then, through the same skin incision, made an esophagotomy, and extracted the plate of teeth. When fully under chloroform an esophageal bougie passed into the stomach with hardly any resistance, but I could feel it had touched and passed some foreign body. The same sensation was conveyed to me on slowly extracting it. Upon pushing it down a second time, and sharply tapping it on the foreign body, a distinct click could be heard, and we felt satisfied that one of the teeth on the plate had been encountered. The bougie was now laid aside, and, with due aseptic and antiseptic precautions, I proceeded to remove the goitre. It was quite adherent to the neighboring tissues, and of especial interest was a calcareous nodule, which pressed upon the left side of the esophagus below the level of the cricoid cartilage, upon which rested the plate of teeth, and evidently prevented it descending farther down the esophagus. Great care was taken to have absolute hemostasis, and to strain the tissues as little as possible. There was nothing unusual about the thyroidectomy. It was ac-

completed rather expeditiously. The right lobe was not removed. When the goitre was out of the way, the plate of the teeth could be felt by palpation. It was lodged an inch below the cricoid cartilage. The esophageal bougie was now pushed down to the plate, and the opening into the gullet made over the bulb of the bougie. The two teeth showed in the wound, and with my fingers I could feel that the concavity of plate was towards the left and the teeth uppermost. An incision full $1\frac{1}{2}$ inches had to be made before the plate of teeth could be extracted. The wound in the esophagus was now closed with inversion sutures of silk. The external wound was closed, except its middle third, through which a packing of iodoform gauze extended to the wound in the esophagus. A large antiseptic dressing was applied, and the patient put to bed. Both operations were finished within an hour and a half, and she was in an excellent condition, having suffered apparently no shock.

After-Treatment and Progress.—Nothing was administered by the mouth for five days, dependence for sustenance being entirely upon rectal feeding. On the fifth day the dressings were changed, the packing removed and another, but a smaller one, put in its place. There was no fistula to be seen in the esophagus. On the sixth day she was allowed to swallow milk, but it induced spasmodic coughing, and some of the milk was expectorated. There was evidently a communication between the esophagus and trachea. On the seventh day a fistula formed externally with the esophagus, and milk that was swallowed passed out at the side of the neck and at the same time produced severe coughing, with expectoration of the milk. Upon holding her nose and closing her mouth, air could be forced from the lungs through the esophageal external fistula. This was also another proof of the existence of an opening between the esophagus and trachea. For three weeks after this the wound was dressed every day, and the stomach tube passed three times a day, through which she was fed. By this time the fistula ceased, and she was allowed to swallow.

Present Condition.—Wears no false teeth; is well nourished; never felt better in her life; has no difficulty with swallowing or breathing.—[Am. Jour. of Surg. and Gyn.]

Dental Excerpts.

GREEN GOLD is composed of pure silver one part and pure gold two parts. Dr. Melotte says he backs all teeth with it, and can solder it with 20-carat solder.—[Univ. of Mich. Dental Journal.

RUBBER FINGER.—You can buy in rubber stores rubber fingers, which are useful if you have to finger foul mouths, and are just the thing to have on the finger of the hand which you use in the mouth when keeping the lips and tongue out of the way in extractions.—[Dom. Journal.

TO PREVENT RUBBER FROM ROTTING.—A cycling paper states that the occasional soaking of rubber articles in a 3-per-cent. solution of carbolic acid will prevent the rubber from becoming rotten. It might be worth trying this suggestion on rubber sprays, etc., things which we may not often use. And the rubber of which, in the meantime, frequently perishes.—[Dental Record.

TREATMENT OF FINGER WOUND.—In case of a wounded finger Dr. J. Y. Crawford recommends wrapping tightly with a ribbon of bibulous paper and floss silk, and immersing in alcohol. He believes that when alcohol is absorbed into the system, *pari passu* with the toxin, there is elaborated an antitoxin—something which annihilates toxic influences.—[American Dental Weekly.

RINSING THE MOUTH.—One thing not often spoken of in reference to cleaning teeth is the value of rinsing. Many patients know nothing about it, and the average dentist does not think it worth while to mention it to them. The matter of closing the lips and forcing the water vigorously backward and forth, between the teeth, exercises an important part in the cleansing of the teeth. I take water in my mouth and show patients how they ought to rinse their mouths after the use of the brush.—[Garrett Newkirk, in Dental Review.

USE OF RUBBER RINGS.—Keep an assortment of small rubber rings on upright pieces of wood or steel, the size of a match. I often use them for ligaturing rubber dam. Slip on and off easily; do not hurt gum like silk. Handy too in keeping in cotton, etc., over temporary preparations in large and shallow approximal cavities. Can cement them over cavity.—[Dom. Journal.

SOLVED THE PROBLEM OF PAINLESS DENTISTRY.—We are pleased to learn that O. W. White has solved the problem of painless dentistry. Mr. White refuses to divulge the secret, and whether it is the result of some recently discovered obtundent or the manipulative ability of the operator we are unable to state, but nevertheless the patient slumbers peacefully, oblivious to all surroundings, while Mr. White forces the gold to its place and brings out the graceful contour of the tooth.—[Univ. of Mich. Dental Journal.

FACIAL NEURALGIA FROM NECROSIS.—Patient, a woman about 50, with a fine set of teeth—almost perfect. She had slight pyorrhea of the first molar. The pain in her face she had had for about three years, having been treated by specialists, and had her throat and nose examined, but nothing could be found. I could find nothing, and sent her to have the first molar taken out; she came back and I found necrosis extending up to the floor of the antrum, but there was no apparent outward sign of any trouble.—[Dr. Russell, Items of Interest.

CRAZED BY COCAINE.—Cocaine would seem to have curious results on excitable individuals. At Melbourne, a patient after having a tooth extracted was arrested by the police. The dentist had injected a few drops of cocaine into the gums, and after the operation the patient was seized with nervous excitation, and without any further reason he went to the palace of the Governor, with the intention, as he said, "To die in his arms." He announced this intention so noisily that he had to be locked up. After a few hours, his mind was again in a normal state, and the magistrate let him off.—[The Dentist.

OPENING UP CAVITIES.—A hand mallet and chisel used as a mallet and plugger are more tolerable to a patient when breaking into "a cavity than the punching method."—[B. Teague, in *Dental Weekly*.]

A DENTIST GETS JUDGMENT FOR UNCALLED-FOR WORK.—At Newton Abbott, on February 11th, a dentist sued a farmer for £10 10s. for a set of teeth. The defendant went to plaintiff for a set of teeth, and a model of his mouth was taken. When they were ready he was given notice, but so far as plaintiff knew defendant never attended to have them fitted. At the expiration of six months the teeth were sent to defendant by registered post, and he kept them for two years. Judgment was given the plaintiff for £10 10s. and costs.—*Dental Record*.

CATAPHORESIS AND BLEACHING TEETH.—A great many prominent men in the profession have advocated the use of cataphoresis in bleaching teeth, and a good many of us have met with considerable success. I am rather surprised that any of us have ever met with success, because we have always used the wrong pole of the battery: we have used the positive pole when we should have used the negative, and our success has been owing to the pyrozone and not to cataphoresis.—[W. St. Geo. Elliott, in *International*.]

PORCELAIN FILLINGS.—Glass fillings do not find favor in this country, but are much used abroad, and when skillfully fitted and inserted are much more permanent than entire cement fillings, and are very difficult of detection. The late Dr. Evans, of Paris, was very partial to a porcelain filling made from a porcelain tooth of appropriate color and shade and fitted to the cavity, usually on the buccal surface. He showed me one case in his own office, and I have seen others of his cases in Berlin. Dr. N. S. Jenkins, of Dresden, wrote me some time ago that he expected this winter to give to the profession a perfect glass filling; but a letter from C. Ash & Sons, of London, informs me that Dr. Jenkins has not yet introduced his glass filling, but he is still working hard at it to perfect it in all its details.—[F. S. Buckley, in *Review*.]

IMMEDIATE INVESTING MATERIAL.—A nice and convenient way to make an investment for soldering, is to take a small quantity of asbestos fiber, place it in a dry rubber bowl and incorporate with the fingers as much of Teague's impression material as the asbestos will take up. Moisten the compound as you use it, and shape the investment with the fingers as desired, around the piece to be soldered. The investment becomes hard immediately on being heated, and does not change its shape. Plaster will not do as a substitute for Teague's material, as it changes its shape on heating, even when mixed with asbestos. In using to invest pieces of work held together by wax, the wax should always be removed by warming the investment and picking it out with the point of a suitable instrument. Hot water poured on the investment softens in on account of the asbestos fiber absorbing the water. Porcelain faces can be invested with this mixture and dried out immediately with the flame of a blowpipe without the danger of cracking them.—[H. R. J., in Amer. Dental Weekly.]

EFFECT OF TIN ON NON-COHESIVE GOLD.—At the 1898 banquet of the Alumni Association of the Chicago College of Dental Surgery, Dr. Louis Ottoby in his remarks on important developments said: "You know that gold has a great many properties that are not understood. I had a piece of gold lying between two sheets of tin that was non-cohesive when it was put there. I had occasion to take that gold out to use it, and it worked like so much putty. It could be laid upon another piece of gold and it would stick to it. At first it was non-cohesive, and afterwards it became absolutely cohesive by putting it between two pieces of tin. I have not done anything about it yet, but I am going to tell someone about it and see if there is anything in gold lying for any length of time in contact with tin. If gold is laid between sheets of paper, as I have had it, it will not have that effect. The reason I mention that is this: Something may come up in your practice that you do not know how to develop. Don't forget it, but give it to someone who will work it out. Most of our men have been drawn into a line of investigation by an innocent or careless remark by someone else."—[The Bur.]

TO COOL AN INVESTMENT—There is no doubt that teeth crack on cooling, after the soldering process, as often as when they are being heated, and perhaps oftener. If, when the case is left to cool, a small box or bucket is placed over it, the cooling will be slower, but more uniform, and will give better results; there is no doubt that the cool air striking the case while still hot has much to do with checking the teeth.—[D. D. Atkinson, *Dental Weekly*.]

HEAT AS AN ANTISEPTIC.—Heat can be used in the following manner: After applying the cofferdam, and removing all vestige of the putrescent pulp, we can follow with the root-canal drier. Upon its introduction into the pulp canal a hissing sound will be heard, proving the presence of moisture. This process must be repeated until the hissing sound ceases. The tooth then is thoroughly dessicated, and is now ready for direct medication. Proceeding further, we introduce our antiseptic dressing into the pulp-canal, and by capillary attraction the medicine is carried into the inter-tubular spaces. The tooth then receives the benefit of direct medication, thereby saving time otherwise used in continuous treatments. Another important point gained is that heat not only dessicates the pulp-canal, but is an active agent and aid to antiseptic medicine by way of lessening the virulence of pathogenic germs.—[J. H. Wooley, in *Indiana Dental Journal*.]

WOOLLY ASBESTOS AN INVESTMENT MATERIAL.—Woolly asbestos, well saturated with water, forms an investment that in many cases fully replaces the usual plaster and sand, with the advantage that it is more cleanly to handle, does not run into the cracks and crevices we desire to fill with solder, and there is no waiting for it to harden. The blowpipe flame may be safely directed upon it immediately. The pieces to be united, held together with hard wax, may be embedded in it with the same facility as in plaster and sand. Without a moment's delay, the investment may be dried out and the wax burned off at the blowpipe, instead of chipping it away, flux and solder applied, and the soldering completed in less time than is usually required

for plaster and sand to harden. The investment does not crack, but with as little or even less mass than required of plaster and sand securely holds the parts together. Woolly asbestos is not expensive, and as it can be used over again repeatedly the cost is trifling. With a little practice its use may with advantage be extended to many cases in which heretofore plaster has been considered essential.—[International Dental Journal.]

A PECULIAR ACCIDENT IN A VULCANIZER.—A correspondent of the *Indiana Dental Journal* says: On page 367 of your journal is detailed "a peculiar accident in a vulcanizer." The writer is entirely wrong in his conclusions or explanation of the accident. The cause of the "thud" he heard was the explosion of steam contained in the flask, following the lack of pressure from condensation of the steam surrounding the flask, and not "the reverse of an explosion" as he erroneously states. The same thing would occur were it possible to suddenly open the vulcanizer and relieve the pressure from around the flask. I have had it occur three or four times, but never had a plate injured by it.

We believe that our correspondent is entirely correct, and that the usual accurate "D.D.A." who contributed the article to the *American Dental Weekly*, will have to acknowledge that he at least expressed himself in ambiguous terms in describing the causes of the accident.—[Ind. Den. Journal.]

[The "sudden condensation of steam in vulcanizer, caused by placing the vulcanizer in cold water" is the cause referred to by the correspondent.—ED. GAZETTE.]

STUDENTS PRACTICING DENTISTRY.—There should be a severe example made in the colleges of the first student caught practicing for fee or reward on his own account. Such conduct in medicine or law is simply impossible, but in dentistry it has become a very general custom. Several cases have come under our own notice the last month where second-year students have made full upper sets for five dollars 'on the quiet,' and for parties who were quite well able to patronize regular licentiates. In fact, the custom has become such a fad that the rooms of some of

These students in boarding-houses are unlicensed offices on a small scale, and a system of tooting for patients has even extended on the sly to the infirmity patients.

It is generally this class of students who degrade the profession by cheap fees when they get into regular practice. It is a fact, too, that we have some very indigent young men in the ranks. Their poverty is no crime, but unfortunately they imagine it ought to justify them in reaches of law.—[Dominion Dental Journal.

TO REMOVE A PIN CEMENTED TO A ROOT, OR TO A PIVOT CROWN.—I asked this question of a professional friend recently, and he replied: "Extract the root and split it open." I thought this a little too heroic practice, and suggested a milder one. I had a practical case in hand, a patient who had broken a cemented pin at the junction of a common pivot crown with an upper right lateral root. It occurred to me that a strong alkali ought to dissolve the phosphoric acid of the cement, and thus cause the disintegration of the filling. So I went home and threw the pivot crown, in which was a part of the metallic pin, into a bottle of strong aqua ammonia and let it remain over night. Upon removing it I found the cement a complete mush, and easily removed along with the pin also. My patient called soon after, when with a small abscess tubular knife in the engine and-piece, I cut the cement around the pin as far up as was expedient, and then with a fine-pointed hatchet excavator proceeded to finish the operation, applying the aqua ammonia to decompose the remaining cement, and protecting the gum underneath with a piece of rubber-dam covered with a napkin stopping occasionally to rinse the mouth with warm water. After ten or fifteen minutes manipulation my efforts were rewarded by a slight movement of the pin, when I seized the end of it with a small pair of pliers and with a rotary motion removed it.

I believe that oxphosphate fillings last longer in mouths where there is an acid reaction of the saliva, and are less permanent where an alkaline condition prevails. This afforded me the hint, and the result was not unexpected.—W. B. Mead, Providence, R. I., in Cosmos.

News Miscellany.

JAPAN has almost 50,000,000 of people, and 31,000 physicians. There are eight schools of medicine in Japan; that is to say, that the medical art is not on the decline in the race that has been called the French of the Orient. We all know how learned Japanese doctors are. There, for instance, is Kitasato, who first isolated and cultivated the bacillus of tetanus. As to the practical part of the healing art, we know but little, but they have good schools, especially at Tokio.—[Dental Register.

AN OLD DOG ERUPTS NEW TEETH.—A Bakersfield, Cal., correspondent of the GAZETTE sends the following item of interest: Mrs. D. Monroe, who resides at Cameron, has long been known to be the owner of the oldest dog in the country. Last week the aged canine passed his last day in the realm of things that move and breathe, having attained the age of 27 yeas. Of late years he has grown a brand new set of teeth and hair. Nothing else is said of the dog's lineage or of any wonderful deeds he performed during his long career.

THE DEFECT OF BOILED WATER.—We are often told that in making tea, the water should be poured on at the moment of beginning to boil, if the vivacity of the infusion is to be preserved. The reason is that every moment of boiling disengages the fixed air in the water, in every bubble that rises and bursts on the surface, until the residuum is devoid of the inspiriting element, free oxygen, as well as of the useful element, nitrogen. An exchange says: "The proof of this may easily be seen. If fresh cold water be used, the first time it boils it will lift the lid of the kettle and conduct itself in an uproarious manner, boiling over, and trying to put the fire out. It is when in this state that it is good for making tea. If you put it on the fire again, you will find you cannot get it to boil over, a second time, still less a third."—[Modern Medical Science.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

THE NECESSITY FOR COMBINED EFFORT.

BEFORE another issue of the GAZETTE shall have been printed the twenty-seventh meeting of the California State Dental Association will have been held and its proceedings have become a matter of dental history.

Judging from the number of papers and clinics already volunteered, the meeting will be one of unusual interest and value. Our friends in San Jose, to whom has been left in a large measure the perfecting of plans for the accommodation and entertainment of the delegates, assure us that no pains will be spared to make the meeting a notable one, and their good judgment, we know, may be relied upon.

It is to be hoped that the membership of the State Association may be largely increased at this meeting, and that the best of good nature and harmony may prevail, for at no time in the history of dentistry in the State of California has there been more need for combined effort on the part of those who have the welfare of their profession at heart, and who take pride in its achievements, to help maintain here the present high standard of our profession. At no other time could lack of harmony and unanimity of purpose have done so much to undo the labor of our best workers as they may do now, for dentistry stands today on a higher plane than ever, and the future of organized dental effort has never looked brighter or been filled with the promises of better work still to be done. But there is no time to take a backward step, and there is little security in the memory of past achievements. The fraud, the quack

and the fakir are abroad in the land; they are coming from all directions, save the west, to make their homes with us, and in the narrowness of their spirit, and vast wealth of their cupidity and dishonor will do what they can to make an unclean and dishonest business of what should be and is by right one of the best and noblest professions.

There is need of combined effort to combat this evil, by legislation if possible, and at all events by precedent and education. There is need of combined effort to make our State and local meetings of such value as will make it too unprofitable for any practitioner with one spark of professional pride to stay outside our membership. There is need of this effort to bind firmer the ties of fraternal interest, to educate both old and young, to keep us all abreast of the times in which we live, and make our profession enter the dawn of another century almost upon us in the vanguard of the progressive and liberal institutions of the age.

That this may and will be done there is little doubt, but the responsibility and labor rests upon the few. Too many are outside our membership; too many are working from only a selfish standpoint. They reap where they have not sown, but the credit for the harvest will not be theirs.

BOOK REVIEW.

DESCRIPTIVE ANATOMY OF THE HUMAN TEETH. Fourth edition, by G. V. Black, M.D., D.D.S. Published at Philadelphia by the S. S. White Manufacturing Co. Price, \$2.50. •

In the fourth edition of this well-known and most excellent work the author has found it expedient to make but few changes from the text of previous editions; those made consisting of the introduction of tables of the angles of the teeth and the angles of surfaces of teeth, and the use of the word *embrasure*, which is defined as "that portion of the inter-proximate space that widens toward the buccal or labial or toward the lingual."

The work is printed and bound in the usual good style of its publishing house, and will undoubtedly meet with a large and well-deserved sale.

Few such works reach a fourth edition in so short a time,

and this fact together with the name of the author are sufficient guarantee of its general excellence.

BOOKS RECEIVED.

COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE. By Geo. W. Warren, A.M., D.D.S. Third edition; illustrated. Philadelphia: P. Blakiston, Son & Co., 1898. Price, 80c. net.

TEXT-BOOK OF DENTAL PATHOLOGY, THERAPEUTICS, INCLUDING PHARMACOLOGY: being a treatise on the Principles and Practice of Dental Medicine. For Students and Practitioners. By Henry H. Burchard, M.D., D.D.S., special lecturer on Dental Pathology and Therapeutics in the Philadelphia Dental College. In one very handsome octavo volume of 575 pages, with 383 engravings and 2 colored plates. Cloth, \$5.00; leather, \$6.00; *net*. Lea Brothers & Co., Publishers, Philadelphia and New York.

NOTES.

THE commencement exercises of the Dental Department of the College of Physicians and Surgeons of San Francisco will be held on Thursday, July 14th.

THE State Board of Dental Examiners will meet in San Jose on Tuesday, June 21st, for the consideration of application for licenses and such other business as may come before it.

PERSONAL.

DR. W. Z. KING, on June 10th, was called to Chico, to attend the funeral of his mother.

DR. W. J. YOUNGER, of Chicago, is expected to pay a visit to San Francisco within a short time.

DR. THOMAS CONRAD an expert oral surgeon recently from New York City, has located in San Francisco where he intends to practice as a specialist.

DR. C. L. GODDARD is enjoying his vacation this year by warming-up in Arizona sunshine. The Grand Canyon of the Colorado is the Doctor's basking spot.

DR. CLYDE S. PAYNE, who, as Vice-President of the L. L. White Tooth Crown Co., went to New York to establish a

factory for the company's product in that city, has determined to reside there permanently. We learn that the White tooth crown has already met a very popular demand.

DR. EUGENE PAYNE, of New York, has been a visitor to San Francisco for several weeks, having come to attend the wedding of his brother, Dr. Redmond Payne.

DRS. WILLIAM LUDLOW, H. P. Travers and G. F. Ames, young dental practitioners of Oakland, have all enlisted in the Hospital Corps of the Sixth California Regiment, United States Volunteers. Dr. Travers received the appointment of Chief Steward, and Dr. Ludlow that of Acting Chief, while Dr. Ames was satisfied to commence as a nurse.

THE STATE DENTAL ASSOCIATION PROGRAM.

The following is the responses for papers and clinics, so far as received by the chairmen of the Program and Clinic Committees, to be presented at the meeting of the California State Dental Association at San Jose, June 21st:

PAPERS.

President's Address. Russell Hopkins Cool, San Francisco.

"Do We Know It All?" G. Alden Mills, New York City.

"Why We Need a Better State Dental Law." Frank L. Platt, San Francisco.

"Hints On Dental Therapeutics." I. W. Hays, Jr., Grass Valley.

"How to Take Partial Impressions When the Teeth Diverge or Converge." F. W. Bliss, Santa Cruz.

"Trifacial Neuralgia Unaccompanied by Odontalgia." Wm. A. Bryant, San Francisco.

"How Remedy Facial Distortion Produced by Artificial Dentures?" A. M. Barker, San Jose.

"Making and Tempering Small Steel Instruments." Bertram C. Boeseke, San Francisco.

"Oral Manifestation of Syphilis." Frank C. Pague, San Francisco.

"Dental Education and Its Relation to Dental Ethics." F. H. Metcalf, Sacramento.

"Irregularities of Animals' Teeth; or Comparative Odontology." C. L. Goddard, San Francisco.

"Color-Blindness as Affecting Dental Operations." W. J. Prather, Fresno.

"Dental Topics." C. A. Meek, Chico.

"The Evolution of Decay." A. C. Hart, San Francisco.

"Dental Ethics: A Burlesque." A. H. Mories, Alameda.

Report of Committee on Microscopy, with practical exhibition. A. C. Hart, San Francisco.

Report of Committee on Prosthetic Dentistry. J. A. W. Lundborg, San Francisco.

Report of Committee on Operative Dentistry. S. E. Knowles, San Francisco.

Report of Committee on Therapeutics. Walter F. Lewis, Oakland.

Report of Committee on Dental Literature and Education. F. H. Metcalf, Sacramento.

CLINICS.

Swaging Metallic Plates with Counters, Made of Modeling Compound. A. N. Dick, Woodland.

Lowry's System of Crown and Bridgework. A. O. Hooker, San Jose.

a. Practical Jacket Crown; b. Some Amalgam Fillings. H. B. Copeey, San Jose.

Open-Faced Gold Crown. Frank L. Platt, San Francisco.

Exhibit of Fillings, Nominated "Gold Veneers." O. B. Burns, San Francisco.

Exhibit of Peculiar Models. W. P. English, Vacaville.

Making and Tempering Small Steel Instruments. Bertram C. Boeke, San Francisco.

Gold Building, Using Various Mallets. A. F. Merriman, Jr., Oakland.

a. Treatment of Pyorrhea Alveolaris; b. Implantation; c. Use of Silk Sutures; d. Exhibit: Bridges on Implanted Teeth. Russell Hopkins, San Francisco.

a. Obtunding Sensitive Dentine, Continuous Hot-Air Current; b. Treaching Teeth with Continuous Hot-Air Current, plus 3 to 5 per cent. ozone; c. Application of Devitalizing Medicine to Exposed Pulp. Frank C. Pague, San Francisco.

a. Making and Using New Root Canal-Filling of Canada Balsam and Iodo; b. Use of Agents (such as formaldehyde, etc.) in the Arrestment and Prevention of Decay as Caused by Bacteria; c. Practical Importance of the Microscope to the Dentist; d. Exhibit of Sections of Teeth, Showing Bacteria, etc. A. C. Hart, San Francisco.

Exhibit: Gold Inlays and Methods of Producing Same. J. A. W. Lundborg, San Francisco.

Clinic (to be announced). S. E. Knowles, San Francisco.

BURCHARD'S DENTAL PATHOLOGY, THERAPEUTICS AND PHARMACOLOGY.—The first two volumes of "The American Text-Books of Dentistry," namely, the "Prosthetic," edited by Prof. Essig, and the "Operative," edited by Prof. Kirk, have created so favorable an impression that the third of the series, shortly to be published, will be awaited with expectancy. Dr. Burchard happily combines rare powers of scientific insight, practical application and clear exposition. He is one of the most fertile contributors to dental literature, and his pen, enriching anything it touches, has powerfully aided to give his profession the advancement it is achieving as one of the most highly developed of the medical sciences. The basic foundation of dentistry on the identical principles

which underlie modern medicine and surgery is in fact the keynote of Dr. Burchard's book. It inculcates throughout a sound and rational pathology, and builds thereon a clear and successful system of practical dental medicine in the broadest sense. The grouping of subjects is equally original and fortunate. Not only are they naturally germane, but, moreover, each tends to aid the comprehension of the others. Furthermore, it will be observed that the three volumes of this series will cover the most important parts of dentistry, both from the standpoint of the practitioner and that of the student. The previous volumes have been promptly adopted as official text-books, and equal recognition is virtually assured for Dr. Burchard's book.

Publisher's Notes.

ANNOUNCEMENT TO PATRONS.

WITH this (June) issue terminates the ownership of the Pacific Medico-Dental Gazette Co. to this journal. Mr. James W. Edwards, the well-known dental goods dealer of San Francisco and Los Angeles, having purchased the GAZETTE, will with the next (July) issue be its publisher. In making this announcement we can give assurance that change is one that will redound to the benefit of the GAZETTE and its patrons. Very respectfully,

PACIFIC MEDICO-DENTAL GAZETTE Co.

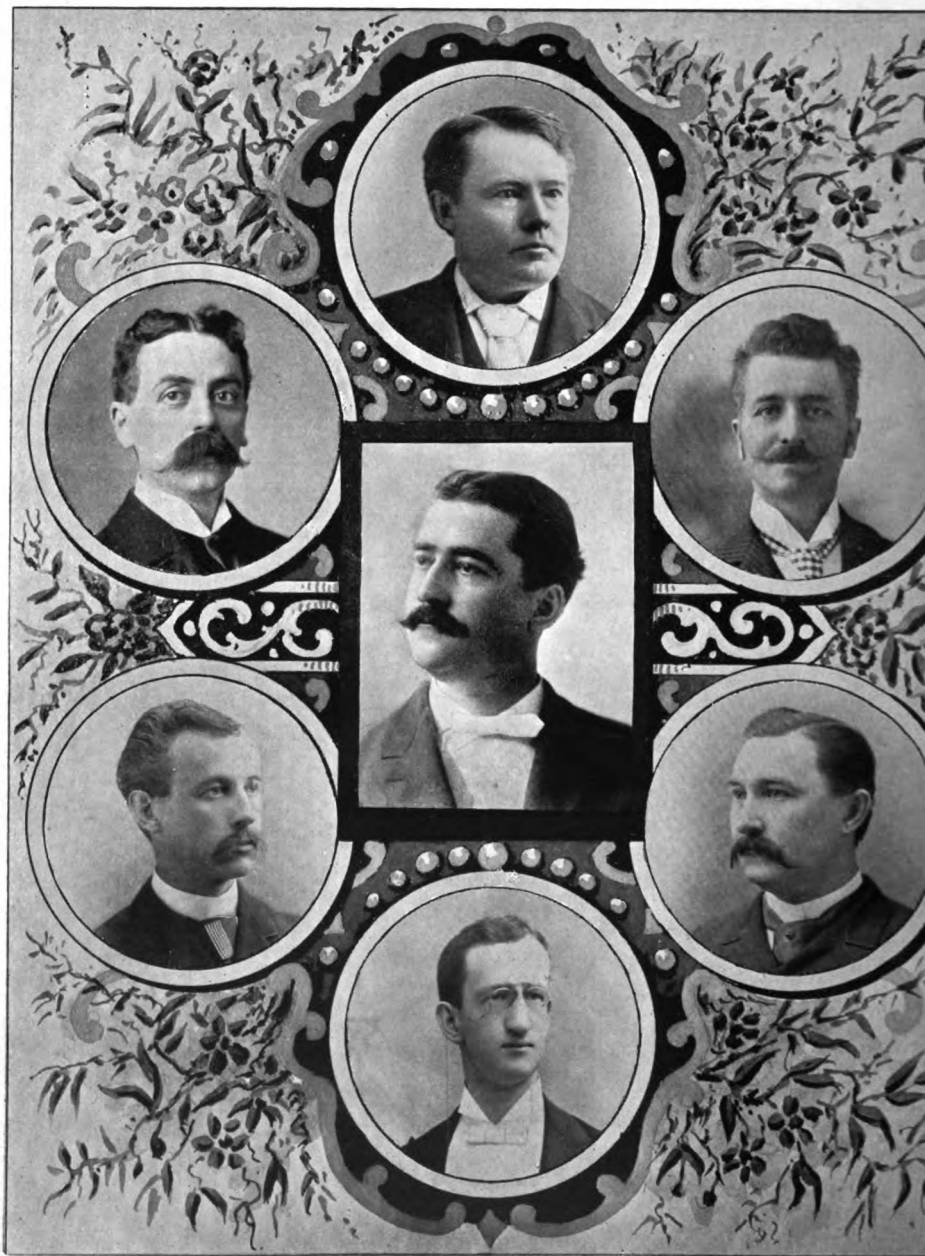
Per MILES L. FARLAND, Manager.

REFERRING to the foregoing announcement, I am pleased to state to the GAZETTE's and my own patrons throughout the Pacific Coast that, having purchased the PACIFIC MEDICO-DENTAL GAZETTE, I shall as its publisher make it a publication worthy of the field it occupies, which is already a broad and growing one, and shall omit no opportunity to enable it to rank with the best journals of its class.

The association of Mr. Miles L. Farland with the GAZETTE as its publishing manager and representative will be continued. Mr. Farland will also represent the dental goods department, and all business favors and courtesies extended through him will be equally appreciated.

Very truly yours,

JAMES W. EDWARDS.



A. F. Merriman Jr., 2d V. Pres.
W. Z. King, Rec. Secretary.

Walter F. Lewis, 1st V. Pres.
F. H. Metcalf, President.
Frank L. Platt, Cor. Secretary.

A. M. Barker, 3d V. Pres.
Thomas N. Iglehart, Treas.

OFFICERS OF CALIFORNIA STATE DENTAL ASSOCIATION, 1898-9.

Pacific Medico-Dental Gazette

VOL. VI.

SAN FRANCISCO, JULY, 1898.

No. 7.

Original Papers.

A REVIEW OF THE PAST AS ASSOCIATED WITH THE WORK OF PROF. GREENE V. BLACK.

BY J. FOSTER FLAGG, D.D.S., SWARTHMORE, PA.

[A paper presented before the California State Dental Association, June 24, 1898.]

IN the month of May, 1895, there appeared in the *Dental Cosmos* an article from Dr. G. V. Black, which, from its volume, its pretensions, its character and its editorial and other eminent endorsement, was certainly something remarkable.

Its length was nearly seventy pages! Its pretension was that it was the record of the *first scientific inquiry* ever made in its direction. Its character for assumptions, for evidence of *extraordinary* labor in the tabulation of results, but more than all for the "conclusions" reached, was, to say the least, unique; but, if possible, all these considerations were insignificant in comparison with the draft upon adjectives for the effusive, congratulatory, adulative reception which was accorded it by editorial, professional and eminent criticism and endorsement.

Without any discussion, without any general comment, without the giving of any time for even a breath to "the profession," it was hailed from the housetop as the *sum-mum bonum*, the grandum grandorum for which "the profession" had been waiting as the capstone to its already amazing "progress."

This and its associate articles were referred to as of "wonderful importance" almost before the printer's ink

NOTE.—The editors and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

was dry. In that little gem, the *Miniature Cosmos* for 1896—from which, if from anything, we hope to obtain solidity, truthfulness and sense—we find this paper alluded to in no doubtful tones, but as “likely to serve as a milestone in the future progress of dentistry,” as “basal work,” as going “to the root of the subject,” and, as for its unique conclusions, that while at direct variance with some of the most strongly intrenched empirical notions of dentistry, “it must be remembered that no statement is made which is not supported by apparently, at least, the most conclusive proofs,” thus giving the prestige of a *tendency toward acceptance upon what seemed as reasonable grounds* for at least five of the most palpable absurd conclusions that have been offered dentistry during the last half century.

These should be read and repeated; that with each such reading it may be recognized how fully *each day's experience* tells of their fallacy; that with each repetition it may be felt how solidly the “work” of all the workers has established the truth of just *the opposite* of everyone of these “conclusions;” and these truths, which have so universally forced themselves upon the acceptance of *almost every observing dentist* (at least ninety-nine in every hundred), and upon which for the last twenty or thirty years so successful tooth-saving practice has been established, are glibly styled “empirical notions.”

And from what has all this smoke ascended and these ashes fallen? From an idea entertained by Dr. Greene Black, that dentists thought that teeth not liable to decay contained an *excess of inorganic material*, and that teeth liable to decay contained an *excess of organic material*.

Upon this *assumption* (for I shall show that it is neither more nor less) an amount of “work” was done that fairly rivals that of those curiously carved Chinese balls of ivory in which each lesser ball turns within each larger; a work which is said to require a lifetime to accomplish, and which when done amounts to nothing.

It was with admiration, as well as pity, for the “investigator” that I gave the time to read those twenty-four pages

of analyses and summary which seem to have been so *satisfying*(?) to the "investigator," and which so conclusively proved just what everybody in dentistry had accepted as correct, and what, so far as I know, had never been disputed.

Almost a century ago (1814) Mr. W. H. Pepys Jr. made the analyses of the enamel, the bone or roots, and of the teeth of adult humans and of the teeth of children. This was done by request of Mr. Joseph Fox, and was published in his book of that date, and his results of analyses are *practically* those given us today by Dr. Black.

To give Dr. Black full credit for *results* to which he certainly is entitled—he has shown that the analyses of "perfect teeth" and of "carious teeth" are almost identical; but what I desire to impress is that he regards this as *proving erroneous the belief* that the relativity of proportions of inorganic and organic constituents in tooth tissue was preventive or permissive of dental caries.

That any such "belief" generally existed I deny. I think that my long and intimate association with dental matters and dental work warrants me in having an opinion regarding this, and I can say that in all my forty years of society and college intimacy I never heard any such doctrine advocated nor even mentioned until I read the third paragraph of Dr. Black's first article in the *Cosmos* of May, 1895. The whole foundation of the "foolish man who built his house upon the sand" may be found in that paragraph.

From thenceforward he labors through such a mountain of words that I venture to say but very few will ever climb it; but having done so, patiently and perseveringly, I can also say that I found the ascent utterly non-compensating.

It is seventy pages of such as might be given to proving that the earth revolves around the sun, or that it turns upon its own axis, or that just what has been believed and taught *uninterruptedly* as to the relativity of organic and inorganic components of tooth tissues is true, and has never been disputed.

But now comes the *marvel* of all this—the "conclusions"

from this enormous amount of useless work. And *such* conclusions from *such* work were fairly gloated over by "an editorial epitome." "Look at these figures" (!) "Now what do our advocates of 'plastics for poorly calcified teeth' and 'gold only in teeth above the average in structure' propose to do with these figures" (!)

Just as though "these figures" were entitled to the least attention, except as the most *voluminous corroboration of ordinary textual authority* ever given!

And then this editor goes on to say: "And these conclusions come from a man who has made more real scientific experiments to determine the truth than all the advocates of the 'compatibility' theories have ever performed."

For a "real scientific" opinion I think this beats the record! But he continues: "What is to be done with these demoralizing figures? How are these confoundedly annoying demonstrations to be buried?" "Up to this writing there has been no response. Are we all paralyzed?"

WE!

This editor, at least, seems not to have been "paralyzed"; on the contrary, he seems to have been as thoroughly galvanized as were ever dead frog legs before.

The "figures" have demoralized no one that I know of. It is not *desirable* that these "demonstrations" should be buried. It is better, we think, that they should be kept above ground and left to putrefy, as they seem to be doing, except in the cool air of the "Northwest" (not so far north, and by no means very far west!)

And this is about the caliber of the comments and reviews of *this part* of this extraordinary paper; the paper that "is evidence that the spirit of scientific inquiry is wideawake"! (Miniature *Cosmos* for 1896, page 9, "Pointers for 1896.")

What is the continuous pointer in all this?

"There is practically no difference in the percentage of lime salts between the cases in which the teeth are classed 'of pure structure,' 'lacking in hardness,' and those which dentists usually call 'dense,' perfectly calcified teeth."

Who ever said or thought there was? What chair of dental physiology ever taught more than one analysis showing the percentage of lime salts in dentine? or more than one analysis of the lesser percentage again in cementum? And what chair of pathology ever taught that any *variation from these accepted relativities* was the cause for that resistance to caries which we find in "hard teeth" (as hard as flint!) or for that liability to decay which some few of us *think* we have noticed in "soft teeth" (soft as chalk), or for the success with which we combat the progress of decay in teeth "above medium in structure"?

Above medium *in structure*! Here "we" have the keynote of the bugle blast which has led us to victory!

No such "work" as that of Dr. Greene Black has been done in the fight for this. It has been accepted and taught that the "goodness" or "badness" of teeth depended upon their *makeup*, and not upon what they were made of.

Who would dare teach that if a loaf of bread were made of so much flour, so much milk or water, so much yeast and so much salt, that, with an oven and fire a grand result could be obtained? These are the ingredients and the accessories; but behind all these is *vitality*—that which manipulates and manages; and this *governing attribute* is not the same in any two of a dozen cooks.

And so it has always been taught me, and so I have always taught, that it is with every tissue and organ in the body. The food given may be the same, the selection from the same, the quantity and quality may be the same, and the *tissues* and *organs* which each economy will make up from these will be the same; but *the makeup* will not be the same, as *each distinctive class of humanity will work under the domination of its peculiar temperamental attributes*.

Thus it is, "bilious" teeth have *strength*; are yellow in color; are set firmly in the jaws; are wonderfully exempt from decay; and in which even ordinary or poor work, with gold as filling material, will last for years, and where such

fillings of gold as *any of us* will make would last a lifetime.

Thus it is that "sanguine" teeth are creamy in color; set also with firmness in the jaws; are also reasonably exempt from decay, but in connection with which only *good work* will produce creditable results, and this in every phase of operative dentistry.

Thus it is that in "nervous" teeth even the shape is markedly modified, having the necks small and Gothic-arched, in place of Roman; with edges thin and delicate, and cusps long and sharp, with pearly-bluish color—not so strongly set, and while usually with fine and reasonably strong enamel quite as usual with *not well-calcified* dentine.

Here then begins most decidedly the need for something more regarding "choice of filling materials" than (as Dr. Black puts it) "the individual operator's judgment as to which he can so manipulate as to *make the most perfect filling*, considering the circumstances, his own skill and the durability of the material." (*Cosmos*, May, 1895, page 416.)

And yet the italicized *most perfect filling* unwittingly tells the truth, the whole truth, and nothing but the truth; for, as we would put it, "the most perfect filling" is that one which most perfectly *saves the tooth!*

Is that the standard Dr. Black intends? Do you think so?

And, finally, thus it is that the lymphatic teeth are those which with their enormous size, their suspicious opacity, their loose setting in the jaw, and their ready and persistent yielding to what is known as the "ravages" of decay, give us that class which demand, as *clinically demonstrated*, a far different knowledge from that of the *judgment* of the operator as to his manipulative ability, and no less than an extended knowledge as to the attributes of the materials he proposes to utilize for their tooth-saving ability.

This is what the advocates of "plastics for poorly calci-

and teeth" have to say. And I feel that they can safely have the record of their feeble teachings and their meager, unscientific experimentation as a solid defiance to all those "conclusions" which are "at direct variance with those strongly intrenched empirical 'notions'" that are so much more strongly intrenched by the daily experience of *almost* every practitioner of dentistry.

CATARRH OF THE ANTRUM OF HIGHMORE.

BY H. I. JONES, M.D., L.R.C.P.E., ETC., SAN FRANCISCO.

Oculist and Aurist, Member of American Medical Association and San Francisco County Medical Society.

CATARRH of the antrum is frequently overlooked and mistaken for an affection of the nasal mucous membrane. When an abundant fetid discharge runs from the nose, especially when it is intermittent, the existence of the disease of the antrum should be suspected, and a careful search with a nasal speculum and a good light for the welling up of the secretion through the foramen in the middle meatus. If this matter is wiped away it is apt to return, and a pulsating light reflex is occasionally observed similar to that seen in perforation of the drumhead during acute suppurative inflammation of the middle ear.

The mucous membrane lining the antrum of Highmore is liable to suppurative inflammation, and a collection of pus which may completely or partially fill the cavity. This cavity is liable to be attacked from either one or two sources: from an extension of an inflammation of a tooth, or from some diseased condition of the nose.

From the location of the antrum, immediately above the incuspid and molar teeth, the fangs of which perforate the floor, and from its more-or-less communication with the nasal cavity it would be expected that disease of its lining membrane would be frequent, resulting either from an affection of the teeth or extending from the nasal mucous membrane, which is often inflamed.

Authorities are divided as to the most common cause. Heath, Simon, Frankel, Moritz and others state that disease

of the teeth is the most common cause of this affection. On the other hand, equally competent men, Bosworth, Hartman and others, maintain that the cause is from disease of the nasal cavities.

The majority of cases in my own practice have been due either to external injury or disease from the teeth.

The normal opening from the cavity into the middle meatus varies from the size of a crow-quill to an opening nearly large enough to admit the tip of the little finger. In the latter condition the product of inflammation may be readily discharged and spontaneous cure may be expected, but when the orifice is small it may readily become closed and the pent-up secretion become purulent and offensive. If there is free exit into the nasal cavity the patient will experience but little pain. If the secretion be pent-up he will suffer from tenderness of the teeth, cheek, orbit or frontal sinuses.

The discharge is most abundant early in the morning, after the patient has been long in the recumbent position.

In chronic cases the discharge is purulent and generally exceedingly offensive. The patient complains of bad odor to the breath, and a discharge of pus from one side of the nose. Some annoyance will be felt from the offensive pus which trickles into the throat during sleep.

Persistent discharge from one nostril is usually due either to a foreign body or to the disease under consideration; nasal polypi or disease of the frontal sinuses may cause similar symptoms.

When pain is in the region of the antrum, and an offensive purulent discharge from the nares of the corresponding side, there can be little doubt about the diagnosis. In all cases careful inspection of the nose and mouth must be made.

If the inferior turbinated bone is much swollen, a little cocaine applied will reduce the tumefaction, and with the aid of a good light, reflector and speculum the diagnosis will be easily made.

The only other affection with which disease of the an-

trum is liable to conflict is suppurative inflammation of the ethmoidal cells. In the latter there is much less pain, and the discharge from the nose is less copious, and on inspection the pus is found to trickle down at the posterior end of the inferior turbinated, instead of across the middle.

Another method or aid to diagnosis is by electric illumination of the antrum, by placing a four-candle-power electric light in the patient's mouth in a dark room. It is thus described by Davidsohn, who places less reliance on the illumination of the antrum and more on the illumination of the eye as a diagnostic aid in abscess of this cavity: "If the cavity should contain a small quantity of pus, the cavity itself may be illuminated while the corresponding eye remains dark."

I myself have used this method for some time, and can verify its usefulness.

With reference to treatment in acute cases, fomentation and local blood-letting, if suppuration has taken place, free exit of the pus through the alveolar space. If a diseased tooth is found to be the cause, it should be extracted, and the opening left by the fang enlarged so as to have free drainage. If the teeth are sound, it is best to draw the first molar, as its socket is deeper than the others, and most liable to decay. If patient has already lost the teeth, the antrum can be reached through the space left. There is a diversity of opinion about the method of surgical treatment of suppurative inflammation of the antrum; one method of which is highly recommended, that of washing out and injecting antiseptics through the natural opening; if the opening is large it is easy, but when the opening is small it is very difficult, let alone painful, to perform. I have tried it in many cases without success, being obliged to resort to the drill.

Sir Astley Cooper, the celebrated English surgeon, opened the antrum by extracting a tooth and entering the cavity by the hole left by the fangs. In using a bone drill care should be taken lest it plunge in too suddenly and wound some other parts. The opening should be drilled

on a line with the internal canthus of the eye of the same side, provided the antrum is of normal shape, and no high-arched palate. Make the opening so that you can put the end of your little finger in so as to make a thorough exploration. Wash it out with some antiseptic solution. I am in the habit of using zymocide and warm water, then peroxide of hydrogen and every other day with 5-per-cent. solution of nitrate of silver, then packing it full with moist iodoform gauze.

Two weeks ago I operated on Mrs. U., assisted by Dr. Von Wifesberg. This case was the result of injury to the alveolar process when extracting a molar. An opening was made through the space left by the tooth giving exit to a ropy pus; after-treatment was according to the plan above stated. Constitutional treatment must not be overlooked.

DENTAL PROGRESS IN CALIFORNIA.

AN ADDRESS BY RUSSELL H. COOL, D.D.S., F.S.C., PRESIDENT OF THE
CALIFORNIA STATE DENTAL ASSOCIATION.

[Read before the California State Dental Association, June 21, 1898.]

TWENTY-SEVEN years! It is but a brief period in the life of a man; but an episode in the life of a nation; but a heartbeat in the pulsating life of the great world. Yet in the twenty-seven years during which our State Dental Association has lived, there have been changes that have marked a revolution in our profession—changes which, had they or a tithe of them been foretold by one of the originators of the Association, would have marked the prophet for jeers of the incredulous, and would have relegated him at once to the ranks of perfervid fanatics. Yet discoveries and inventions there have been in the life of this Association that are more wonderful than the tales of the Arabian Nights. I have but to mention local anesthesia; asepsis; the use of electricity, particularly cataphoresis; the treatment of pyorrhea alveolaris; implantation and its allied operations; the use of the mechanical plugger; the fabrication of perfected cements; the invention of crown- and

bridge-work, and the fashioning of a host of labor-saving instruments, to only hint at the tremendous stride that dentistry has made in less than three decades of this marvelous century.

The Association has had a healthy growth in numbers alone, and I think I am within the truth when I say that the enthusiasm has increased in geometrical ratio to the membership. When the California State Dental Association was organized there were twenty-three regular practitioners who became members; now there are one hundred and thirty members of the profession, worthy and well-qualified, whose names are upon its rolls.

Like all good things, the State Association has been a stimulus to growth upon collateral lines. Since its organization and the diffusion of knowledge consequent upon its activity there have been colleges and local societies organized that have served to emphasize the purposes and crystallize the efforts of the parent organization. It has even extended its benign influence beyond the local fields of this state, and has been the means of giving to the profession upon the Pacific slope two wonderfully successful dental congresses, soon to be followed by a third, which will doubtless equal if not excel both the others in good results. And while I am upon this subject, let me say that the features of interest and instruction already promised for the dental congress to be held in Portland, August 22, 1898, are so numerous and of such quality as to make it certain that the meeting there will mark an epoch in the history of the profession, not only upon this coast but in the world. The dental congresses have co-operated with the California State Dental Association in promoting the establishment of splendid local organizations that are accomplishing the utmost good; for a local society, properly conducted by men of earnest purpose and enthusiasm, is to the professional life of a man what the home circle and the pleasant fire-side with their hallowed influences are to his moral life. With progressive societies constantly bringing out the best efforts of their members; effecting an exchange of ideas;

creating by frequent association an *esprit du corps* among their members; discountenancing by their united efforts unprofessional conduct of all kinds, and stimulating practitioners to enter the fields of original research, with such societies, I say, doing their noble work, the tendency of our profession upon this western border of our continent *must* be onward and upward.

The pioneers who organized the State Dental Association "builted better than they knew," for the most important outgrowth of their labors, the establishment of institutions of dental learning, was at first fraught with considerable friction and much honest difference of opinion; but today, in view of the splendid work that has been done, and is now being accomplished by our two colleges, the University of California College of Dentistry and the Dental Department of the College of Physicians and Surgeons, all must concede the wisdom of those who brought about the first endowment of systematic dental instruction under the sanction of the State.

When the dental department of the University of California was created so intense was the feeling for and against its organization that there was almost a schism in the ranks of the State Association. But time heals all wounds, and today the Association and the college work in harmony. We are all justly proud of the history of this college, which starting with twenty-five students and the requirement of a two years' course, and no requirement for admission, has steadily increased in the number of students; which has raised the standard of instruction and requires for admission an examination in English, Latin, physics and four elective studies, and added another year to the course; and has so impressed the people of the State with the good work accomplished that the representatives in the Legislature have made princely appropriations to provide a suitable home for it; and which has grown until it now numbers 159 students upon its rolls. The alumni of this college occupy prominent positions throughout the United

States and Europe, and a diploma granted by its faculty is everywhere a passport to professional recognition.

Since the last meeting of the California State Dental Association (1896) another dental college—the Dental Department of the College of Physicians and Surgeons, has been established in San Francisco. It entered upon its career under the most favorable auspices. With a staff of men composing its faculty whose abilities are of the very highest order, and whose enthusiasm is tremendous, it will do much for the profession, while the healthy rivalry which must exist between it and the older college will undoubtedly prove beneficial to both institutions.

Historically, our profession throughout the world has been passing through the most remarkable period of its existence during the years that have elapsed since the formation of this Association. It has grown from adolescence to maturity; from a profession unrecognized by the medical and surgical professions to one which is looked upon as an important branch of special surgery; from an art almost without literature to one enriched by the work of thousands of scientific text-writers and the almost daily efforts of pamphleteers. In short, it has advanced from a position little better than that of a trade to the lofty heights of a scientific art that writes its achievements upon the brightest pages of the wonder-book of this century. It has widened its scope and magnified its purpose so that its practitioner is no longer the "dentist" but the "stomatologist." Formerly, the medical man looked down upon the dentist and scorned to class him as his professional brother. Now all that is changed. At the meeting of the International Medical Congress—the greatest medical gathering ever convened—held at Moscow last summer, one section was devoted to oral surgery, and learned men of our profession from all parts of the world were invited to participate in its labors. Our Association was represented by one of the most eminent if not the most distinguished of these. I refer to that noble man and splendid scientist, Dr.

Wm. J. Younger, whose report upon the proceedings held there we all await with anxious expectation.

The American Medical Association, always progressive, has been one of the foremost to recognize the achievements in our special work, and has established a section devoted to stomatology, and this brings me to a consideration of the word "stomatology." Though the ultra-conservative may carp against its use, and the non-progressive may deride it, the fact remains that the word has gained a permanent place in the terminology of the profession. And it deserves that place, because it more accurately expresses the scope of the oral surgeon's activity; for we are no longer mere repairers of the teeth, but men entrusted with the most delicate and important operations in connection with the oral cavity and its associated organs. Societies of stomatology have been formed in France, in Australia, in the Eastern States, and, on the Pacific Coast, in Portland, Oregon, and in San Jose, Los Angeles and San Francisco. The society in the last-mentioned city, has met weekly during the past four years, and has accomplished great work, not only in its clinics but in the contributions of its members to the literature of the profession. These productions have been published in many journals of note both in this country and in Europe.

While the great progress which we have noticed has been made by our profession upon scientific lines there is one thing in which we have yet much to accomplish, and that is in legislation for the protection of and regulation of practitioners. To be sure, we have in this State a law which provides for the prosecution and punishment of those who practice without the prescribed certificate. This is all very well as far as it goes, but experience has taught us that many reforms are desirable in the laws upon this subject.

At the last session of the Legislature of California an attempt was made to pass a new dental law, but the measure was defeated. This fact, however, should not discourage us, but should only spur us on to renewed efforts. And to the end that something of value may be accomplished

upon proper lines at the next session of the Legislature, I respectfully suggest that at this meeting a committee upon dental legislation be appointed to formulate and present a law for our approval. This subject has seemed to your President one of such grave importance that he has devoted some thought to it, and has consulted with persons of experience in regard to the matter. He, therefore, respectfully suggests the following reforms :

First.—The State Board of Dental Examiners should not be appointed by the Governor of the State, but by the State Dental Association. This would accomplish two desirable ends: it would insure the selection of competent practitioners to serve upon the board, and it would remove this important professional body from the domination of that most baneful of all modern social influences known as "politics."

Second.—The Board of Examiners should not have absolute power, but should be restrained in some manner, particularly in the matter of deciding which colleges are reputable and which ones are not. I am not prepared to say how this check should be applied, perhaps a veto power might be lodged in the executive committee of the State Association.

Third.—No application of a non-graduate should be received unless accompanied by a sworn statement of the candidate that he has served a term of three years of apprenticeship in the office of a regularly licensed practitioner; or a like term as a regularly enrolled student in some dental college of recognized rank.

Fourth.—Licentiates from other States should be compelled to pass examinations before they be admitted to practice in this State, but graduates of colleges of recognized standing should be admitted to practice without examinations. Such a course would do much to encourage students to enter college, because it would do away with all "short-cuts" to practice which, under existing statutes, are only too available in some States.

Fifth.—Penalties for violation of dental laws should be

severe, and that main obstacle in the way of a proper enforcement of such laws, trial by jury, should be abolished; and the abolishment of trial by jury, I am informed, may be done by the Legislature. It is true that the Constitution of California provides that the right of "trial by jury shall be secured to all, and remain inviolate." But this has been held by our Supreme Court to apply in cases of misdemeanor to such offenses as were recognized by common law, and which were triable by jury under the common law. Misdemeanors created by statute and different in their nature from the common-law offenses may be tried without the intervention of juries if the Legislature chooses so to provide for their trial. (See *Taylor vs. Reynolds*, 92 Cal., p. 573.)

These are but a few of the changes that might with profit be made in the dental legislation of this State; and they might be effected more easily, perhaps, by the amendment of existing statutes than by entirely new enactments. Such laws properly enforced would reform many abuses and would serve to promote a higher standard of efficiency among California practitioners.

There are some lamentable and even disgraceful things connected with dental practice in this State, however, that cannot be reached by legislation. One of these is the practice of advertising "dental parlors," "cut-rate dentistry," "free consultation," etc. Those who indulge in this practice should be made to feel the contempt of reputable practitioners, and should be shown to the public in their true light, for their catch-penny methods invariably bring to them unfortunates who are made the victims of cheap work hastily and badly done. To be sure, some of these violators of ethical practice *can* do good work, but they never *do* it at the prices advertised. It should be a matter of deep concern to us when we know that at least three men who have been honored by high positions in our societies, one of them an ex-dean of one of the dental faculties, have seen fit to resort to advertising methods such as are adopted by so-called "medical dispensaries," "specialists," who guarantee cures, women of the half-world who conduct

what are known as "massage parlors," and all the motley crew of disreputables who hawk their wares in the public prints or by means of circulars.

Much has been said of late in our leading dental journals upon the subject of the endowment of dental research. The work of men specially qualified by nature and training to delve deep into the mysteries of nature and bring forth for our use the golden truths there to be found would be productive of the greatest good if suitable endowment could justify them in devoting their entire time and their uninterrupted zeal to the prosecution of their investigations. If some of the older and richer institutions which annually expend great sums in the cause of science could be induced to devote a portion of their funds to so noble an object as an endowment for dental research upon certain scientific lines there is no reason to doubt that results of the highest benefit to mankind would be obtained. For example, how desirable it would be to have a man like Dr. G. V. Black so placed that he could devote his undivided attention to his investigations in the working qualities of amalgam; or Dr. J. Leon Williams, of London, made free to bend his energy alone upon his researches into the pathology and histology of the dental tissues; or our own Dr. A. C. Hart given an opportunity to pursue, untrammelled by other duties, his able and original studies in microscopy, which have already won him wide recognition.

There is a movement now on foot to induce Congress so to amend the patent laws as to prevent the acquiring of patents upon methods of treating human disease. It is a notable crusade, and, it seems to me, one that should be encouraged by this Association. While it is legitimate that men of mechanical ability in the profession should obtain patents upon instruments which are sold to all who want them, at uniform price, all ethical doctrines teach us to condemn the practice of monopolizing, by patent, methods of alleviating human suffering; as, for example, a method of treating pulps. If Dr. John Doe invents an instrument useful in the preparation of cavities, for example, and puts

it upon the market for Drs. Jones, Smith and Brown to purchase and use, if they like, Dr. John Doe is to be applauded for his inventive genius that has been of use to the entire profession; but, if Dr. Richard Roe discovers a new method of removing roots without pain, he deserves nothing but condemnation if he uses the patent laws as a means of forcing his professional brethren either to pay him tribute for the privilege of saving some human suffering, or to force patients at vast expense and loss of time to seek him out if they would avoid pain. The principle involved is well expressed in John G. Saxe's poem commencing:

"God bless the man who first invented sleep":
So Sancho Panza said, and so say I.
And bless him also that he did not keep
The great discovery to himself, nor try
To make it as the lucky fellow might,
A close monopoly of patent right.

Let us encourage our brethren who are prosecuting the appeal to Congress, and put the stamp of our disapproval upon the present system which enables some, as is said by the editor of *Items of Interest*, "to sit in idle luxury which they purchase with the tribute extorted from the pangs of human pain."

The great struggle in which our country is now engaged to uphold the honor of the nation and the flag upon land and sea draws the interested attention of all to the army and the navy. The war is teaching many important lessons, but none more forcibly than that, when our heroes shall have humbled Spain in the dust and shall have borne the boon of freedom to the suffering inhabitants of Cuba, the army and navy must be kept in a high state of efficiency and the number of men in both branches of the service increased greatly beyond the establishment maintained prior to the war. These men will be required to maintain cleanly and regular habits; to keep themselves in the best possible physical condition, so that when called upon for service, they will be the most effective fighting machines, and when sickness comes upon them, they will be attended by skilled surgeons in well-equipped hospitals. But up to

At the present time no provision has been made in the army and navy for the care of the teeth of the men—for the preservation of those organs that play so important a part in the general health. This should not be. The Government should be made to see the necessity for employing skilled stomatologists to keep the teeth of the enlisted men in good condition. Such specialists would be of great use in assisting at the examination of recruits so that men with unsound teeth should be rejected; and in cases of gunshot wounds of the mouth and surrounding organs, the special skill of the oral surgeon would be invaluable.

When we meet upon an occasion like this, it is but meet and proper that we should pause to pay a tribute of respect to the great and good and learned of the profession who have laid down forever the cares and trials and burdens of this transitory life. Their earnestness and zeal should impel us to greater efforts; their devotion to the profession should stimulate our flagging fealty; and their nobility and generosity should elevate our ideals. Outside of this State of California, since last we met, the profession has lost many of its illustrious members. Upon the roll of honor we find the names of Carl Heitzman, Henry S. Chase, Frank Abbott, E. Magitot, Wm. N. Morrison and Thomas W. Evans, men who have left in the literature and work of the profession enduring monuments of their life labors. The time allotted me will not allow me to speak in detail of their talents, their services and their lofty characteristics. You all know and admire their histories, and no poor words of mine could serve to gild your appreciation.

While we deeply deplore the death of those great men who dwelt beyond our borders, it is with feelings of peculiar tenderness that we sadly pay our tribute of love and appreciation to two of our noble brethren of this society who have passed into eternal rest.

Dr. R. Taggart, of Tulare, a valued member of this Association, has gone from the scenes of his early activity since our last meeting. We reflect with genuine grief upon

his tragic taking off; and offer our sincerest sympathy to those who were near and dear to him.

With reverence and with heartfelt grief we call to mind the death of that learned man, that warm-hearted friend, that model husband and father, that splendid Christian gentleman, Dr. Henry E. Knox. The salient attribute of Dr. Knox's character was a joyous philanthropy. He was a genuine friend to his brother man, and the basic doctrine and practice of his religion were the betterment of his fellows and the increasing of their happiness. He had a merry word for all, and a buoyancy of nature that even the terrible bodily afflictions that came upon him in his latter days could not destroy. He was generous even to extravagance; courteous alike to equals and inferiors. No old practitioner ever left him without feeling better for the association of such a man, and no young man in the profession failed to secure from him kindly words of encouragement and advice. May angels guard his resting place, and may his sleep be sweet!

And, now, to our illustrious dead I have but this sentiment to express, in the words of one of America's greatest orators: "We dismiss them not to the chambers of forgetfulness and death. What we admired and prized and venerated in them can never be forgotten. I had almost said that they are but beginning to live—to live that life of unimpaired influence, of unclouded fame, of unmingled happiness for which their talents and services were destined. Such men do not, cannot die."

In closing I think I may be pardoned for congratulating the Association upon the work of the past and the augury of greater achievements in the future, and for expressing a conviction that this will prove to be one of the most noteworthy sessions of this society. If harmony and good will shall prevail (and I know they will), and if we will devote ourselves assiduously to the objects for which we are assembled, this meeting of the California State Dental Association will mark a glorious epoch in the history of stomatology upon the Pacific Coast.

DISCUSSION.

Dr. J. L. Asay.—Mr. President, I am sorry I did not read the paper before its delivery. The address is so long, so full of import, so full of special ideas conducive to the elevation of the profession on this coast that it is almost impossible to discuss it in one evening. It is the most valuable paper that has ever been read as a president's address before this Association. It is full of meat; it is what we want, and it is down to business. There are some things in it, however, to which we will upon the proper time take exception. It first dwelt upon the point of dental organizations being conducive to the welfare of the State of California. Certainly there is nothing nobler in humanity than the bringing of a profession—the bringing of a brotherhood—together in an assembly to meet, converse and discuss scientific subjects. It speaks of the educational facilities of the different dental colleges of the State—of the two colleges. It will be remembered, as is said, that in the State society some twenty years ago, when my old friend Dr. Dutch was president, the proposition to organize a dental school was met with ridicule in every shape and form; in fact, there were certain members of that society that were ostracized from it on that account. I call to mind very well when Dr. McLean, Dr. Dennis and myself went down into our pockets for the money to start that college in the University of California, which now occupies so noble a position. That was the start of dental education on this coast. Now there exists a just, an equal, a friendly rival in another college that has sprung up, and with which I am connected, and that rivalry will be for the advantage of the profession on this coast. It will be in the matter of higher education, because we cannot get too high though we were to reach God's heaven. We want a better education; we want better facilities. We must have them; the profession demand it and the people demand it. The charlatan and the advertiser must be relegated to where they belong; they cannot come into our friendly circle.

As to the matter of dental legislation: that question will come up in due time. Certainly we need a better law. The law so far has been good; but, Mr. President, it is no bet-

ter than each one of us makes it. Who are the violators of the law? Not the man that comes in here without a diploma, but that man who knows that some man is practicing without a diploma and does not inform on him. When I was on the State Board of Dental Examiners I was approached time and time again by persons saying, "Why don't you stop that man from practicing?" I said, "I don't know as to how anybody is 'practicing.'" "Well, he is practicing without a license." "How do you know?" "Well, I know it." "Why don't you inform on him?" "Oh, people would think I was jealous of him. It would hurt my business." That is a cowardly sneak, the sneak that like an assassin will creep on a man in the dark and plunge a knife into him. He is not the man to come out and say, "This man is violating the law." He wants somebody else to do it; he wants the Board of Examiners to act as a cat's paw. Now, as I said, we need a new law. When this question of law comes up I perhaps will have something more to say about it.

Dr. S. E. Knowles.—Mr. President, I heartily endorse all that Dr. Asay has said in regard to the merit of the address. I have listened to addresses in this body for twenty-five or more years, and it is one of the best, if not the best, I have ever heard.

In regard to the matter of dental legislation, I have had some little experience in legislative matters pertaining to dentistry. Although the suggestions made are excellent in many respects, there has been exhibited a lack of practical knowledge in regard to the methods of procuring legislation. The present law permits the Governor to select the members of the Board of Dental Examiners. Any change in the method of selecting would be resented by the Governor as trenching on his rights. Men in executive positions are jealous of those things. Another objection would be the confining of the appointments to the membership of any body. At the time the law was passed there were in this State two dental societies claiming the same jurisdiction: this Association and another society, which lived for about a year—the Odontological Society. The original draft of the law contemplated giving to each society half

for a portion of the appointments—I think the number was unequal (seven), but it was designed to confine the membership on the Board of Examiners to those two societies. There was considerable friction—considerable controversy between the two societies at the time, through one having been long established, and the other being of recent growth. In fact the later society had not at that time held an annual session. We urged that fact as an objection against the new society, and hoped to confine the appointments to the old association. That very argument was used against us that we had used in our behalf—that our society might not be stable; if the other society was not stable, circumstances might arise under which the law would become inoperative. The point was a good one. The result was appointments were made from the profession-at-large. I know that upon various occasions Governors have acted upon recommendations made by this society, but it was done in an informal way.

So far as procuring a change in the dental law is concerned, it is infinitely better to amend the old law than to substitute a new law. It is easier. We have already the edge of the wedge in. It is very much easier to force it deeper than it would be to commence anew.

There was one point that I am not certain that I understood: in regard to the students or licentiates from other States. Did I understand you right, Dr. Cool, when I supposed that you believed the Board of Examiners were in any manner compelled to recognize certificates issued in other States?

Dr. Cool.—No, Doctor, I think that is not the law as it at present stands. That section, I think, requires an examination. I said that the reputable colleges should be recognized, but that licentiates from other States would have to be examined.

Dr. Knowles.—I misapprehended that. That is the present condition of things. That is perfectly proper, because in some States the Board of Examiners have proved inefficient. They have passed candidates, I am sure, who never should have been admitted to practice.

Now, in regard to the point requiring candidates for ex-

amination to pass a studentship of three or four years, there is this practical objection to it: all legislation is presumably primarily for the benefit of the people at large; not for the profession. The object of legislation is to insure ordinary skill on the part of the practitioner. The people don't care as to the manner in which the skill or information is acquired, whether it is obtained in a college, evidenced by a diploma, or whether it is obtained in a private office, or whether it comes by inspiration; the thing is, the practitioner must possess this knowledge. Therein is an objection to it. The general public have an idea that all this legislation is in behalf of the profession and for the purpose of making a close corporation of our business. They so look upon it. When these cases are given to the jury they fancy it is a case of interested parties against competition. They cannot conceive of an association of professional gentlemen having at heart their welfare and the welfare of the profession. Selfish motives are always attributed, and the average jurymen does not like to be a party to enforcing a law of that kind. He goes on the jury probably thinking that he will conscientiously discharge his duty, but when the time comes for the verdict he is very apt to ignore the law and place himself in the position of a champion of the accused. He does not like to be a party to the infliction of what he considers to be a trenching upon individual rights.

The matter of dental legislation was gone over just before the last session of the Legislature. An abortive attempt was made which, I think, was rightfully defeated. It was an effort made to substitute another law. It is a question as to whether it was better than the one at present in force. Now, I was a member of the Board of Examiners one full term and a part of another, long enough to get an insight into the workings of the law. I am sure that the law has been faithfully and fairly administered. I think, so far, the appointments have been excellent. We have had in this State as compared with other States a Board of Examiners that has been known as "a terror." I have had it stated to me repeatedly that the Board was very severe.

Chairman Metcalf.—I would like to hear from Dr. Bliss, President of the State Board of Examiners.

Dr. Asay.—Mr. Chairman, I wish simply to ask if there is any college or educational institution on this coast that can show the percentage the present Board of Examiners has? At its last session there were 46 applications, and but 18 passed.

Dr. F. W. Bliss.—Mr. Chairman, I am verry sorry that you called on me to talk upon this part of the President's address referring to the State dental law. I do not care to talk upon the subject, as President of the State Board of Dental Examiners. The remarks that Dr. Knowles has just made are the best I have heard upon the subject. I am sure I cannot enlighten you further upon it. I endorse the position of Dr. Knowles.

Chairman Metcalf.—Dr. Tebbetts of Sacramento.

Dr. F. F. Tebbetts.—Mr. Chairman, it is rather a surprise that the members of the State Board of Examiners are selected to make remarks upon this occasion. The ably written paper read by Dr. Cool I heartily endorse. I think the Association should discuss his paper upon its merits; it is an able paper. As a member of the State Board of Dental Examiners I heartily endorse the remarks that have been made by both Dr. Asay and Dr. Knowles. Dr. Knowles is a past member of the State Board of Dental Examiners. I don't know of a member of the State Board of Dental Examiners up to the time of his resigning the office but what was endorsed by the executive committee of the State Dental Association? Am I not right, Dr. Knowles?

Dr. Knowles.—I do not remember, Doctor.

Dr. Tebbetts.—I believe that nearly every member of the State Board of Dental Examiners up to that time had been endorsed by either one society or another. I believe, in all fairness to the dental profession, that for any fault that may be found in regard to the dental laws of this State the blame ought not to be placed upon the State Board of Dental Examiners. It rests upon yourselves, gentlemen. The law is plain as A B C, if you will read it. It is your duty to inform the district attorney of the county in which you reside of any violation, and it is his duty to prosecute

if you present him with the evidence of a dentist practicing without license. You have in the city of San Francisco, even at the present time, I dare say, 100 illegal practitioners; 100 men, or nearly so, whose names do not appear on the roll of legal practitioners of this State. The State Board of Dental Examiners with its secretary, Dr. Moore, has done all in its power to prevent it; have almost, you might say, if I may be excused for the use of the term, "bulldozed" those that could present evidence against illegal practitioners who have no diploma; but they have not been influenced. There are many in San Francisco who today are defying the law; and the dental profession-at-large is represented largely by the dentists of San Francisco, the metropolis of the State. We in the country outside of the city of San Francisco look to you to put your shoulders to the wheel and force these gentlemen into line. Dr. Metcalf, who is a member of the profession in Sacramento, where I also reside, will state to you that there has not been an illegal practitioner in the city of Sacramento since the law has been made. [Applause.] Why is it, gentlemen, that we are in harmony there? If we have an illegal practitioner in the city of Sacramento we consider him in our county society, our executive committee notifies him, and if he does not leave the city he is prosecuted. We do our duty. Let the gentlemen from San Francisco or any other part of this State do likewise and the laws will be enforced. The gentlemen who are on the State Board of Dental Examiners do their duty. The Governor of this State, one of the most honorable men and one of its best citizens, has done his. The fault is not to be found with the executive officers of the State. No man has been on the State Board of Dental Examiners who has not been backed up by the profession-at-large. Gentlemen, I am interested to a certain extent in politics as well as in my profession. I have held honorable positions. When my petition went before the Governor of this State it was endorsed by the State Dental Association of California of which you are members. I wish to state that others have been also. Now, gentlemen, it is your duty, as I said before, to put your shoulders to the wheel and assist the State Board of Dental Examiners. These

gentlemen have done their duty. There has not been an examination, in my opinion, where anyone unworthy has passed. We have had influences brought upon the Board. Place yourselves in their position, if you please. People pleading, with tears rolling down their cheeks, asking us in God's name "how we are going to make a living, support our wife and little ones?" because they were unable to pass the State Board of Dental Examiners. Where is your college that will listen to such people and show the cold shoulder to them? [Applause.]

Dr. W. A. Moore.—Mr. Chairman, I am very much surprised that you should call on me; I have nothing to say now. When the subject of dental legislation comes up I will then have a little to say. There is one thing, however, I will say. Last year, as secretary of the State Board of Dental Examiners, I got out circular letters to the legal practitioners of this State, sending out over 400 letters, asking the profession-at-large to notify me if there were any illegal practitioners in their community. I got eight replies to the 400 circulars, and six of them were from one man. One party that he complained of was his own brother, who came up before the State Board of Dental Examiners last year and passed a very creditable examination. Now, when the profession-at-large talk about the Board of Examiners not doing its duty, which I have heard they have been saying, they don't know what they are talking about. If they would attend to their business half as well as the Board of Examiners do they would not have any kick coming. The law as it stands is all right if the profession-at-large would take an interest in it and help us to enforce it. I made a trip to Los Angeles last summer on a little business connected with the Board. One of the ex-members of the Board down there told me he would do all he could to defeat the Dental Board of Examiners if they prosecuted any man in Los Angeles county.

Dr. Tebbetts.—Concerning prosecuting people, the law as it reads does not require the Board of Examiners to prosecute any man. There is no money appropriated or set aside for any such purpose. The law states explicitly that it is the duty of the dental practitioner in any locality to

inform the district attorney of infractions of the law, procure your witnesses and prosecute the case. The State Board of Dental Examiners have no such right; it is not our duty, and no provision is made for it. If an amendment to the law can be made that the State Board of Dental Examiners should have power to set aside a certain amount of money, to hire detectives in such matters, I suppose we would then be able to prosecute cases.

Dr. W. F. Lewis.—Mr. Chairman, we have been discussing legislation so vigorously that I have become a little mixed as to the consideration of the President's address. Which is it we are considering?

Chairman Metcalf.—Take the President's address and consider any part you wish.

Dr. Lewis.—I was just thinking as I sat here that a man might perhaps with impunity do almost any mean thing, but I have learned by observation and experience that it is a dangerous proceeding to wake up the State Board of Dental Examiners. I want to say that I think every member of the State Board is an object of supreme commiseration. I think I might be prevailed upon to do almost any kind of manual labor, sawing wood or something of that kind, but I would rather be excused from being on the Board of Dental Examiners, from what I know of the history of this business, what I know of the anathemas heaped upon them, and the impossible things that are expected of them.

I want to endorse the compliments paid the President's very able address. I have one thought in the discussion of it: his resumé of the work that has been accomplished in a quarter of a century brings to my mind very forcibly the added dignity that has come to the dental profession. I don't know whether you have thought about it so much. As I sat here listening to it I thought what a different standing the dentist has today from what he had twenty-five years ago; the importance of his position in the community; the importance of his position relatively to other professions. Much of this has been brought about by just such organizations as this one that is assembled here tonight. I am glad that we have had this very elaborate showing of this whole subject on the field of dental legislation, and the

large sphere of the dental profession and of the improvements both in the literature and the mechanics of the profession. We are not mechanics any more; we are stomatologists. I did not like that word very much at first. I used to feel a little bit off about the word stomatologist. I am now growing to like it better, and as years go by I think I shall like it pretty well. To be a stomatologist is to be something more than a tooth-puller; something more than a tooth-stopper; something more than a maker of rubber-plates.

Dr. L. Van Orden.—Mr. Chairman, Dr. Asay was fully correct in stating that it was a wide, sweeping, far-reaching address, and one giving evidence of a great deal of thought. One of the most interesting subjects touched upon was the progress of the profession, its increased dignity and its usefulness as compared with past times. There is, I think, a tendency in the present day and just at the present moment, that may hold for some years to come, to give considerable attention to a consideration of the dignity of the profession. After all the discussion, which I enjoyed exceedingly throughout, feeling instructed and entertained by it, I could not help thinking that if I had anything to say, it would be something of this kind. As to the dignity of this profession, which I feel is not second in intelligence and usefulness to any profession, the strongest assurance of its dignity that I have is in that self-respect, increasing from day to day which I feel while working at my own chairside, and in the impression that I have of the usefulness of myself and my confrères to our fellow beings. As to titles, as far as what physicians, lawyers, or people of any other vocation may have to say of us, it concerns me but little. I am myself only concerned with that result which I can obtain by my own earnest and untiring efforts.

Dr. F. L. Platt.—Mr. Chairman, in the very able address of our President there was, as has been said, a great deal for study and consideration. Attention was called in the beginning of the paper to the progress our profession has made in the last twenty-seven years. I do not believe that all are proud enough of that. We are not all of us working hard enough to advance our profession, to convince men

that we are proud of what has been done. The man who is truly proud of what his predecessors have done I think is the man who is doing most to make men proud of him. We are not all of us working hard enough to make the history of our profession what it should be. We have a large association, but it is not nearly large enough. Taking the whole United States through only one-seventh of all the men who are practicing dentistry belong to any dental organization. I can hardly imagine how a wide-awake practitioner can refuse to join a State association, or to do any work for the welfare of the profession-at-large. He is blind to his own interests and blind to the interests of his profession. I think that the reference made to the advancement in the last twenty-seven years, bringing us near the close of this century—the grandest century the world has ever known—should make us all feel very proud of our profession; it should stimulate us to better effort and it should make us all labor hard that those of us who now live and work, but are soon to go, will have left as good a record as the men who have passed away in the past quarter of a century, and some who are still living and working today.

The reference Dr. Cool made to those who have departed from us in the last year was certainly touching. To those of us who had known some of the men who have gone it seems to me that his remarks come home; that we live not only to do what good we can now, but that when we have gone someone may say as good a word for us as our President has so kindly said of our friends that have passed away. Gentlemen, it should not be the main object of our lives simply to work hard to make a living; we have to do that, a great many of us; or to see what we can accomplish in building up a big practice, but in the practice of this profession a man should work not for himself alone but for his fellow-men. He may have been gifted by nature or fortune to practice his profession; to be something out of the ordinary. In doing that he should make some return to his fellow-men. He should be a philanthropist. Our good old friend Dr. Knox was a man of this character.

Dr. F. P. Parker.—Mr. Chairman, I wish to shake hands with the society. I feel proud tonight. When I consider

the able paper with which we have had from our President, have an itching palm that wishes to grasp his to congratulate him on his effort. I am glad the last speaker referred to our noble brother who has gone from among us, Dr. Knox. Speaking of elevating the profession, ennobling it, if every member of our profession could feel in his heart indifference toward everyone I think the society would grow so that instead of 150 we would have a number of hundreds. I remember in the first dental society that I attended our esteemed Dr. Knox came to me and shook hands with me and said a few kind words, and it did me more good, I may say, than the instruction I received in the dental college. It put into me, as Dr. Knowles has said, inspiration. There is where our inspiration comes, when we come up against a man who has a heart that reaches out for us, to help us. I believe that a little effort on the part of the society to be social and kind, to do the little things and say the nice things to one another that are within our power will help to make the society what it should be.

Selections.

DIAGNOSTIC ERRORS.

BY W. GEO. BEERS, L.D.S., D.D.S., TORONTO, CAN.

[Abstract of paper read before the Vermont State Dental Society, March 18, 1898.]

DIAGNOSIS, the process of discovering a disease and its distinction from other diseases, by its characteristic signs and symptoms. Not only to know inflammation of the pulp from hyperæsthesia of the dentine, but scientifically to explore and explain the reasons for our conclusion. Repeated familiarity with the same disease may enable a dentist, as well as a physician, to make a direct and accurate diagnosis. In other cases, where the origin of the trouble is obscure and a disease has subjective symptoms resembling other diseases, the diagnosis has to be more or less differential. Simple gumboil, in some of its signs and symptoms, resembles alveolar abscess. We observe the symptomatology essential to the one and not to the other, and summarizing them we form our conclusions. The pathognomonic signs,

those which specially characterize a disease, are the chief guides in differential diagnosis.

From the point of view of scientific fairness, it is no exaggeration to declare that the wisest dentist is not the one who never makes mistakes, but he who rarely makes the same mistake the second time. Error and failure are necessary stimuli to fact and truth. The men who say they never err are men who, perhaps, do not know that they do not tell the truth.

I think, that as a science in dentistry, the art of diagnosis is overshadowed by the fascinations of its practice. I doubt if, as a profession, we systematically adopt that precise and methodical examination, direct and differential, of obscure cases, which is exacted in medical diagnosis. This is due to our circumscribed methods of education as well as of practice. As a rule, the diseases of the teeth are not alarming enough to prognosticate death, or even dangerous illness, and when they involve serious complications they pass out of our observation and care. Since medical men have surrendered the care of the teeth, neither dentists nor physicians know as much about their pathology in a scientific way as they would were all dentists medical men, and all medical men dentists.

Quite as much so if the educational methods and environments of the oculist had confined him as narrowly to the eyes as those of the dentist have confined him to the teeth. When we know that most of the diseased conditions of the teeth are but results of disease elsewhere; that they represent the same departures from normal physiological action as diseased conditions in other parts; that the boundaries of our pathology extend to the entire head and neck, the stomach, etc., we should recognize the important fact that while practically our art has its limitations, dental diagnosis has none. The mouth has no more a fixed and unalterable standard of health than the lungs or the liver. There are the same variations and adjustments to varying circumstances in the oral cavity as in the bladder or the bowels. A diseased pulp is as simply healthy structure disturbed in its normal functions as the surgeon finds in a sprain or an aneurism. There is no more an isolated and distinct dental

pathology than there is an independent ocular or aural pathology. The same natural forces move, and the same physiological laws govern the processes of disease in the teeth as in the heart or lungs.

Why do we err in diagnosis? Because we do not *know*. Do not know what? Do not know the scientific basis and detail of diagnosis; do not know what we see, hear, smell, taste, touch. Our very senses are apt to be deceived and nothing is truer than that we cannot accept as infallible what we call the evidence of our senses. We cannot always believe what we see with the naked eye, nor yet with the microscope. Those who are familiar with the exploded inflammatory theory of caries can recall the microscopical errors even of Heintzman and Abbott.

Now to form a correct diagnosis we must at least know the physiological character of the structure we treat.

To know caries from erosion, gingivitis from the oral effects of mercury, to distinguish pulpitis from pericementitis—that is not all of dental pathology.

The applications of etiology are as necessary in simple odontalgia as in complicated fever, if our diagnosis is to be better than a guess. Proper treatment can only follow knowledge of the true cause of disease. A case of odontalgia is presented. Sound teeth by the ton have been extracted because the operators, chiefly the physicians who meddle in dentistry, did not know how to search for the origin of the pain. There are as many causes of odontalgia as there are methods of treatment. What sort of odontalgia is it? Or is it odontalgia, or reflected neuralgia, or any one of a dozen other causes of toothache? It may be neuralgia. If so, is it trigeminal or trifacial? And if so, is it caused by dental irritation, or is it of distant, perhaps of abdominal origin? If odontalgia, is it local, and if so, is due to simple exposure of hypersensitive dentine, or to an exposed pulp, or to morbid conditions of the pulp without exposure, or to pulp stones, or to a dead pulp and alveolar complications? Is it referred odontalgia, and if so is it peripheral, central or cerebral, systemic or general? Is it the odontalgia of gout, of rheumatism, of pregnancy; the causes of each differ. The patient complains of pain in a

lower bicuspid, it is reflected along the mandible to the ear. It may be that the pain originates in a lower molar. We cannot trust the opinion of the patient.

I have long been convinced that one of the most valuable specialism in dentistry would be that of the exclusive consultant who would devote his entire time to diagnosis and critical examination of all the possible influences which may act injuriously upon the dental structures. Our failures in diagnosis are frequently due to lack of time, especially in constituencies where consultations are "included in the bill of fare." There may be temporary or constitutional disturbances, such as anæmia, chronic diseases of the nervous system, of the liver, the kidneys, pregnancy, menstruation, necessary for consideration. We may err by attempting to blame the teeth when, as a cause, they are entirely innocent. We may attribute to carious teeth morbid conditions which have been merely coincident, and not consequences. Scrofulous caries of the malar bone near the suture with the superior maxilla may be attributed to diseased teeth, when they are in no way connected with the disease. A sub-maxillary lymph gland, adherent to the bone, in an early stage of suppuration may be mistaken for an outer pointing alveolar abscess. On the other hand, a developing tumor of the maxilla may be mistaken for an abscess; a lymphatic gland in the lower jaw, due entirely to strenuous conditions may be mistaken for an abscess. Only recently I met a case of discharge from the sub-maxillary gland extending to the clavicle, and which had been surgically treated off and on for two years, due to the death of a pulp after the rough treatment of crowning a lower dens sapientiæ. Many such cases, no doubt, occur to you all. There are so many notes in our own eyes that I refrain from referring specially to the many errors in diagnosis made by physicians in relation to the jaws. When we contemplate the immensity of our own ignorance, which long experience and careful investigation seems to intensify, we need to be charitable to the mistakes made by medical men in matters encroaching upon our specialty. Various affections of the salivary glands of the jaws, the antrum, the gums, the ear and eye, the throat, the nose, etc., originate in diseased con-

tions of the teeth, and are only properly treated by their primary or coincident attention. Simple abscesses are every day confounded with serious tumors; mumps with alveolar abscess, and *vice versa*. In dentistry we are infested with a class who escape diagnostic difficulties by the "practical" use of the forceps. They are nothing but quacks and humbugs, and were public opinion as sufficiently enlightened to the value of the teeth as in that of the eyes, they would be treated as criminals.—[Dominion Dental Journal.]

SURGICAL TREATMENT OF ALVEOLAR ABSCESS.

BY L. MEISBURGER, D.D.S., BUFFALO, N. Y.

[Read before the Eighth District Dental Society of Buffalo, N. Y., April 24, 1898.]

I HAVE chosen for my topic something in "Oral Surgery," which seems at the present time the only permanent operation for the relief of chronic alveolar abscess.

I think I can say without fear of contradiction that dentists as a whole, in the past, have been somewhat fearful of undertaking any operation which was not of daily occurrence in their practice.

There are several factors which enter into the prognosis of a tooth and its surroundings which are affected by alveolar abscess.

First. The severity and character of the inflammatory action and septic invasion. In cases in which inflammatory action is localized, and presenting none or but little febrile disturbance, the prognosis is as a rule favorable, but a slight amount of tissue necrosis occurs.

Second. Should, on the other hand, the inflammatory action proceed with marked violence, it is possible that not only may the pericementum suffer extensively, but a considerable portion of the periosteum over the process may be raised from the bone during the escape of the pus.

Should this separation of the periosteum be maintained for more than a few hours, the underlying bone may suffer to the extent of necrosis. In case of marked lymphatic involvement, the neighboring glands being swollen and tender, or even the skin over them exhibiting evidences of glandular inflammation beneath, more or less septic intoxi-

cation will probably occur, and, unless the focus of infection be promptly sterilized, septicemia is to be feared.

Treatment.—The general treatment of alveolar abscess is that for the treatment of abscess in any part.

The details are of course modified in accordance with the anatomical peculiarities of the part to be acted upon. The principles are the removal of all dead matter, together with the active causes of the inflammation and suppuration—that is, micro-organisms and their products—and the induction of tissue regeneration, which shall restore parts lost through the formation of the abscess.

The instrumental means are the instruments employed to gain access to the focus of disease-action and those employed in the mechanical removal of dead parts.

First. The mechanical measures include the agents employed to wash out the abscess tract.

Second. Those applied to destroy the active causes of the suppuration.

Third. The remedies applied to induce new tissue-growth, and next, those employed to maintain asepsis until the healing process is complete.

In opening an abscess the surface should first be carefully cleansed, and other antiseptic precautions observed. By this I mean that all instruments should be antiseptically treated.

The first step, then, in our operation, would be the cleansing of the surface with hydrogen dioxide, followed by a small injection of a five-per-cent. solution of eucaine; an incision is then made at a point on the gum immediately overlying the apex of the affected root, with a pointed bistoury thrust down to the bone—a good-sized incision should be made. The bleeding is then encouraged by the use of hot water for a few minutes, when a pellet of cotton which has been dipped in a solution containing one or two per cent. of cocaine, and antipyrin four per cent., is then laid against the periosteum at the bottom of the cut. In a few minutes bleeding will cease, when a spear-drill driven by the engine is passed through the bone into the tissue of the apical space.

Any bleeding which may occur is encouraged as above

mentioned. For washing incisions and the abscess in such cases there is no agent more acceptable than a 20-per-cent. solution of phenol-sodique, it being both sedative and antiseptic. A fair-sized round bur is then used to cut away necrosed bone, if any is found.

If it is found necessary to excise the end of a root, a small fissure-bur is used, and the root rounded, leaving no rough edges.

The wound is now cauterized with a 50-per-cent solution of zinc chloride, and the cavity loosely filled with boracic acid gauze, your patient being seen every day, and less gauze inserted at each dressing as granulation progresses.

The time required for healing is from four to ten days, according to existing conditions. An antiseptic mouth-rash should be recommended in addition to the above treatment.

Let me cite the case of a patient who was sent to me who had had an upper central incisor crowned some six or seven years previously; shortly after it had developed an abscess, which having remained all these years had become chronic. The patient would not think of being without a tooth. What could be done? One of two things: the taking off of the crown and insertion of an artificial denture, and consequent treatment along old lines with doubtful results; or the removal of the crown, canal antiseptically treated, end of root carefully filled, and another crown immediately put on, and abscess treated as advocated by this paper.

I report this case, as it shows where this method can be applied with gratifying results to both patient and operator. I have taken it for granted that the canals of teeth treated in this manner have previously been well treated and filled.

In conclusion let me say, then, that this operation is a very simple one, remembering that cleanliness is one of the first principles to be observed, a little care when operating on the anterior teeth so as not to penetrate the floor of the nose nor the antrum of Highmore over cuspid or back teeth. This you can avoid by measuring your root approximately. If by accident you do penetrate these spaces, keep them antiseptically clean by using boracic gauze, and you need apprehend no further trouble.

I have spoken of thoroughly filling and treating the canals of teeth operated upon in this way, for, if this is not done and your operation fails, you will consider your operation a failure, when in fact your preparatory work was carelessly done instead.—[Dental Cosmos.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, JUNE 14, 1898.

CLINIC.—Dr. F. L. Platt. Cement filling of large disto-approximal cavity in lower first bicuspid of a young patient. Object: Conservation of pulp until such time as calcification has been completed.

No discussion.

At evening session the only business transacted was the appointment by President Cool of Drs. F. L. Platt and E. Knowles as delegates to the committee to meet at the State Dental Association meeting for the consideration of amending the State dental law.

SAN FRANCISCO DENTAL ASSOCIATION.

At the afternoon session of the July meeting, Dr. A. Copsey gave a clinic, placing a combination filling of amalgam and gold in post-proximal cavity of superior right second bicuspid. Amalgam was introduced to gum line, the crystal mat gold placed to absorb mercury, followed with cylinder gold.

A fair attendance was noted at the evening session, President Platt presiding.

A large and handsome book-case was in evidence, which the Furnishing Committee had been authorized to provide.

One proposition for membership was rejected, and another was referred back to the Membership Committee for further consideration, it being stated that the applicant had failed to register his certificate to practice.

On motion, several names were dropped from the rolls for non-payment of dues.

A paper entitled "A Few Suggestions On Conducting a Dental Society," presented by Dr. R. E. O'Connell was

owing to the absence of the essayist because of illness from throat trouble, read by Dr. H. L. Seager. The paper was meritorious because of being full of practical suggestions for the successful conduct of a dental society. (The paper will be printed in a future issue of the GAZETTE.)

At the August 8th meeting, Dr. C. H. Bowman will read a paper on "Vulcanites," and Dr. C. Deichmiller will present a clinic.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

THE Southern California Dental Association was organized Thursday evening, June 23d, at a meeting held at the Chamber of Commerce, Los Angeles city, which was attended by about fifty members of the profession. As the name indicates, the organization is not confined to local dentists, but it has a membership from all parts of the southern section of the State. The purpose of the Association is to promote professional knowledge and skill, and to stimulate sociability among its members.

The Association will hold its first regular meeting at San Diego, September 2, 1898.

Following are the officers elected:

President.....	W. A. Smith, Los Angeles.
1st Vice-President	H. R. Harbison, San Diego.
2d Vice-President.....	C. W. Sylvester, Riverside.
Secretary.....	L. E. Ford, Los Angeles.
Treasurer	J. M. White, Los Angeles.

CALIFORNIA STATE DENTAL ASSOCIATION.

THE twenty-seventh annual meeting of the California State Dental Association, held at San Jose, commencing on Tuesday, June 21st, was a decided success in all the features that pertain to a convention of professional people. The time was propitious, the meeting-place well located and possessing all desirable facilities, and the *esprit du corps* active and enthusiastic.

The Hotel Vendome, just sufficiently adjacent from the bustle and distractions of business hurly-burly, with its broad grounds, tree-sheltered walks and paths, its cool, com-

fortable rooms and inviting piazzas, and its large and well-lighted assembly hall, proved to be an excellent dental meeting place.

FIRST DAY.—MORNING SESSION.

At the hour set President Dr. Russell H. Cool called the meeting to order and introduced Dr. F. K. Ledyard, of San Jose, who, on behalf of the local profession delivered a short address of welcome. The Chair then appointed a committee on hours of meeting and a committee on resolutions.

With the announcement that the President's address would be the special order for the evening at 8 o'clock, the morning session adjourned.

FIRST DAY.—AFTERNOON SESSION.

Dr. A. M. Barker having given a clinic on cataphoresis during the morning, it was the topic of wide and general discussion, consuming the entire afternoon.

FIRST DAY.—EVENING SESSION.

Many members having arrived during the afternoon, the evening session had a large attendance.

After the reading of the minutes, twenty applications for membership were received and referred.

The committee on hours reported that the session hours would be from 9:30 A.M. to 12 M.; 2 to 4:30 P.M. for clinics; 4:30 to 5:30 P.M. for discussion of clinics, and 8 to 10:30 P.M.

The following applications being favorably reported on were balloted for and elected, the list (23) being the largest that had ever been presented at one time:

A. N. Dick, L. M. Finigan, H. G. Chappel, F. L. Cauch, D. E. Nash, H. M. Combs, W. H. Evans, F. H. Phillips, H. H. Stevenson, S. C. Maynard, A. A. Fowler, J. W. Davy, A. L. Edwards, C. C. Maynard, S. L. Walton, C. E. Asay, L. E. Porter, C. B. Root, W. N. Avery, F. S. Brooks, I. A. Fraser, C. A. Larison, B. C. Boeseke.

President Dr. Cool then read his address, which dealt with

the progress of dentistry in California, and conveyed many valuable and practical suggestions for the further welfare of the profession. In its discussion it was very freely complimented by each speaker. (The address is printed at page 314 of the GAZETTE.)

Adjourned to Wednesday at 9:30 A.M.

After adjournment Dr. Cool invited an inspection of an exhibit of a remarkable natural inlay placed in an upper central incisor, to displace an objectionable gold filling. So nice is the adjustment that the line of contact is not apparent to the casual observer, and it was pronounced by all a triumph of operative skill.

SECOND DAY.—MORNING SESSION.

The meeting was called to order at 9:45 o'clock by Vice-President Metcalf.

The minutes being read, Dr. F. L. Platt read a paper on "Why We Need a Better State Dental Law," which aroused a lively discussion, two of the members of the Board of Examiners taking so much exception to some statements in the paper as to call from the Chair a reminder that the Board was not on trial before the Association.

Dr. S. E. Knowles read a report on operative dentistry, which was discussed.

Dr. J. A. W. Lundborg presented a report on prosthetic dentistry, which was generally discussed.

Dr. A. C. Hart read an interesting report on microscopy.

Under new business an application for membership was received from C. O. Edwards of Oakland. The resignation of T. A. Vogel of San Francisco was read and accepted.

SECOND DAY.—AFTERNOON SESSION.

The afternoon was devoted to clinics until 4:30 o'clock, when the Association was called to order and discussion had on the same.

Dr. Cool also gave a description of his method of placing natural inlays.

The Chair announced that delegates had been appointed

from the Association to confer with the delegates appointed from local societies to consider a change in the State dental law.

SECOND DAY.—EVENING SESSION.

The evening session was marked with a large attendance of visitors, many ladies lending their presence with inspiring effect upon the essayists.

The application of Dr. S. L. Strickland, of San Francisco, was read and referred.

Dr. F. H. Metcalf read a paper on "Dental Education and its Relation to Dental Ethics," a discussion following.

Dr. J. L. Asay, in his report for the Committee on Pathology and Surgery, presented a paper full of scientific interest.

Dr. W. F. Lewis followed with a report on dental therapeutics.

With the announcement that the delegates to the committee on dental legislation would meet at the close of the session, adjournment was had.

THIRD DAY.—MORNING SESSION.

On coming to order, the Chair announced that the Joint Committee on Dental Legislation had organized, with Dr. J. L. Asay as chairman, and Dr. F. L. Platt as secretary, the committee being comprised of delegates from the State Dental Association, San Francisco Dental Association, Oakland Dental Club, Sacramento County Association, Stomatological Club of San Francisco and State Board of Dental Examiners.

On motion, it was ordered that a notice be sent to all dental societies existing in the State, informing them that a committee to formulate a new dental law had been organized, and asking that delegates be sent to it.

The applications of G. S. Backman, S. L. Strickland and O. O. Edwards were reported upon favorably, and they were elected members of the Association.

Reports of officers being called for, Treasurer Dr. Iglehart

reported that the Association had returned its loan from the San Francisco Association, was out of debt and had money to meet all obligations.

Secretary Dr. King reported 130 members on the roll, 26 applications, with a loss of three, and having received \$725.

Election of officers was then proceeded with, resulting as follows:

President.....	F. H. Metcalf, Sacramento.
First Vice-President.....	Walter F. Lewis, Oakland.
Second Vice-President.....	A. F. Merriman, Jr., Oakland.
Third Vice-President.....	A. M. Barker, San Jose.
Recording Secretary.....	W. Z. King, San Francisco.
Treasurer.....	Thos. N. Iglehart, San Francisco.
Corresponding Secretary.....	Frank L. Platt, San Francisco.

On motion, the officers elected were declared the Board of Trustees of the Association.

It being stated that the Association was entitled to elect one delegate for every ten of its membership to the National Dental Association, on motion, sixteen delegates were elected as follows: J. P. Parker, F. L. Platt, F. C. Pague, R. H. Cool, W. Z. King, I. W. Hays Jr., R. W. Meek, F. H. Metcalf, L. Van Orden, A. M. Barker, F. K. Ledyard, J. H. Hatch, A. F. Merriman Jr., J. L. Asay, A. O. Hooker, T. N. Iglehart.

Under head of new business Dr. Metcalf offered the following resolution:

Resolved, That the first-year fee and initiation be remitted to all members who make application within the first year after graduation, or within the first year of practice within this State.

The resolution being referred to the Committee on Resolutions, was reported back with an amendment, which, after considerable debate, was eliminated and the resolution carried as presented.

It was moved that the resolution be made an amendment to the constitution; and that it be submitted to the membership by mail for endorsement carried.

Dr. W. F. Lewis reported for the committee on compilation of pamphlet for popular dental education that, owing to interference by other dental association matters, the committee had not been able to perform its task, and asked for

further time. The committee (King, Lewis and Parker) was granted its request.

The essay program was proceeded with, I. W. Hays Jr., reading "Hints on Dental Therapeutics," and Dr. B. C. Boeseke a paper on "Making and Tempering Small Steel Instruments."

On request of Dr. Platt, the paper presented by Dr. J. Foster Flagg was advanced for publication in the July issue of the GAZETTE.

Papers entitled "Do We Know it All?" "Color Blindness as Affecting Dental Operations," "Is There No Remedy for Distorted Countenances Caused by Artificial Dentures?" were for want of time read by title only.

THIRD DAY.—EVENING SESSION.

After reading minutes, Geo. H. Worrall's application was balloted on and he was elected.

The Board of Trustees reported its approval of the reports of the Secretary and Treasurer.

On motion of Dr. W. A. Moore, it was decided to hold the next meeting of the Association in San Francisco on the third Tuesday in June, 1899.

Dr. L. Van Orden reported ten clinics for the day.

Papers were read by Dr. C. L. Goddard on "Comparative Odontology," by Dr. Frank C. Pague on "Oral Manifestation of Syphilis," by Dr. A. C. Hart on "Evolution of Decay," all of which received a limited discussion.

Dr. J. W. Davy, for the Committee on Arrangements, reported that an excursion had been arranged for Friday morning to Alum Rock, a suburban mineral-water resort near San Jose.

Dr. A. H. Mories, for the Committee on Resolutions, reported the customary vote of thanks to all who had contributed to the welfare of the meeting, and that an appropriation of \$100 be made to Secretary King for his clerical service.

An Obituary Committee, composed of Drs. C. L. Goddard,

S. E. Knowles and F. O. Pague, was appointed to report at the next meeting.

Installation of new officials followed, with the usual jollification of ceremony and speech, Drs. Morfrew and De-Crow acting as conductors.

With the installing of President-elect Metcalf, President Cool, in retiring from the chair, made a graceful, felicitous speech expressing gratulations for the entire success of the meeting, and giving thanks to the Association for its honors to him.

After transacting some minor business the meeting of the Association for 1898 stood adjourned.

EXCURSION TO ALUM ROCK.

At 9:30 o'clock the excursionists were on the way to Alum Rock, where the party, after strolling about the grounds, testing the waters of the several mineral springs, was summoned to enjoy a well-provided luncheon. After a couple of hours of eating, speech-making by Association members and recitations by several talented visitors, at 2:30 o'clock the excursionists returned to the city, all declaring themselves well pleased with the outing.

NOTES.

Dr. Welch, of the Chas. H. Phillips Co., was on hand as usual, with his jolly smile and antacid remedies, to correct any sour condition of temper or stomach.

To Miss Bartlett, of San Francisco, the visitors to the meeting was also much indebted for readings and recitations that were rendered in a charming style.

R. S. Hurd, representing the Fox & Garhart Dental Specialty Co., of Indianapolis, with a fund of quiet humor, in addition to a repertory of humorous monologues, proved a most welcome visitor.

The dental "wheelist" was much in evidence, a number of the attending members having the forethought to bring their bicycles along. Between sessions those thus provided were enabled to enjoy making the circuit of the beautiful

Garden City, and view its many lovely homes ensconced amidst trees and flowers.

Light exhibits of dental wares were made by the depots of J. W. Roach, the Consolidated Dental Mfg. Co. agency, Priest & Johnson, J. W. Edwards and several manufacturers of dental specialties.

General Medical Miscellany.

FINGER NAIL SPOTS.—White spots on the finger nails represent flaws in the nutrition of the body. These flaws will always be found in cases of fever. They are evidences that for some reason nature has not done her duty in building up the nail. The nail is really a record of life history, just as the hair is. Every hair is irregular in outline. A weak place here, a flaw there, represents the loss of a meal, or a night's sleeplessness. If a man has had a fever, it is written in his hair as well as upon his finger nails.—[Ex.

STARCHED CRINOLINE BANDS.—Take only the starched crinoline. There is a stuff manufactured and stiffened with flour which is worthless as a bandage. The proper material is easy of application and when moistened with water it soon becomes stiff again, making a very compact and neat dressing that is firm and will not shift easily. The meshes of the fabric are such that they can easily be filled in by dusting thereon the dry plaster paris or starch, and this moistened with water upon the hands, quickly sets.—[Dr. F. J. Cliffert, Ft. Wayne Medical Journal.

TO REMOVE FOREIGN BODIES FROM THE NASAL CAVITIES OF CHILDREN.—According to Dr. G. Bieser (*Pediatrics*, July 15) the employment of the usual methods for removing foreign bodies from the nasal cavities in struggling children and without anesthesia is attended not only with the dangers from traumatism, but also with difficulty and occasional failure. The employment of sero-dynamics may overcome these objections. The method advised by the author is as follows: The child is placed in the ordinary position for intubation, the assistant holding his hand snugly over the child's mouth;

end of a piece of rubber tubing is snugly inserted in the nostrils opposite the one holding the foreign body, the other end is inserted into the operator's mouth; the operator then blows suddenly and vigorously into the nostril and dislodges the offending body. The simplicity, cleanliness and efficiency of this method are apparent, the child's struggles causing no traumatism.

STRYCHNINE IN TETANUS.—A discovery recently made by Dr. Macpherson in Uganda that strychnine is a specific antidote against the effects of the poisoned arrows used in the country is both interesting and valuable. Hitherto it has been supposed that the tetanus induced by the poison generally employed by the savages was beyond prevention by any means known to science. The discovery that injections of strychnine can be used as a prophylactic with almost perfect certainty may, it is said, supply medical men at home with a hint for dealing with tetanus which is induced by other causes.—[Modern Medical Science.]

NOSE-BREATHING A PROTECTION AGAINST MICROBES.—The desirability of inspiring air through the nostrils only is further emphasized by the results obtained by Drs. St. Clair Thompson and Hewlett. They had previously shown that the mucous membrane of the healthy nose only exceptionally shows any micro-organisms whatsoever, the interior of the great majority of normal nasal cavities being perfectly aseptic. They now find that nasal mucus is capable of exerting an inhibitory action on the growth of micro-organisms, though they have not been able to obtain any proof that it possesses bactericidal properties.—[Ex.]

A TEST OF DEATH.—Dr. Prentice, of Chicago, claims to have discovered an infallible test of death, which would be valuable in case of supposed suspended animation. When the circulation ceases and death is an absolute fact, the blood vessels of the retina is observed, by the use of the ophthalmoscope, to at once assume a dull pinkish hue; whereas, if even the feeblest circulation be continuing, the blood in the retinal arteries will continue to be brighter than that in the retinal veins. The doctor states also that as soon as the

muscular relaxation of death occurs the orbits fall out their true alignment, usually dropping downward and outward.—[Medical Council.

FOREIGN BODIES IN THE EAR.—Hummel (*Muench Med. Woch.*) makes the following deductions:

1. The relation of the normal ear canal to inanimate foreign bodies is entirely without reaction; that is, the foreign body in the ear does not *per se* endanger the integrity of the ear.
2. Every hasty endeavor at removal is, therefore, not only unnecessary, but can become very injurious.
3. In all cases not previously interfered with (with few exceptions) the foreign substance can be removed from the ear by means of syringing.
4. The general practitioner should never employ anything but the syringe in his endeavors at removal of foreign bodies from the external auditory canal.
5. An instrumental removal of a foreign body from the ear should be effected only by one fully able to examine the ear with an otoscope and acquainted with every operative manipulation in this region.

A POINT IN NERVE PHYSIOLOGY.—The nerve cell once destroyed, is not regenerated; there is no proliferation of nerve-cells in adult animals. The same remark holds good of young animals, and even the foetus. On several occasions it has been claimed, particularly in France, that the lesions in destroyed nerve-centers are repaired, and the lost function thus restored; but in the light of our present knowledge this theory is inadmissible. In traumatism of a nerve-center, all its constituent elements react in the manner peculiar to each; the supporting tissues, the power of proliferation of which is very marked, gaining the upper hand over the nerve-cells, which have lost this faculty. Under normal conditions the nerve-cells exert an inhibitory action on the supporting substances, the equilibrium being thus maintained between various tissues; but when this function is impaired in any way, the elements which were subject to this restraint, having become free, proliferate without any check. This fixity of the nerve-cells renders

possible physical life. Bizzozzero is therefore fully justified in describing the nervous tissue as tissue with perpetual elements.—[Dr. G. Marinesco, in the Medical Week.

BACTERIOLOGY OF WHOOPING COUGH.—Czapleroski and Hensel have been studying the epidemic of whooping-cough in Königsberg. The micro-organism found is a small, short rod, with egg-shaped, rounded ends. It is about the size of influenza bacillus, which it resembles in staining properties, but from which it differs in cultured characteristics. The size varies, the smallest being a coccus; the grown rods are $\frac{3}{4}$ times as long as broad; they sometimes grow in chains. The long form rarely appears in the sputum. The bacillus is non-motile, has little resistance, and resistant forms have not been observed. Inoculation experiments were negative. The investigators were strengthened in their belief that this bacillus is the cause of whooping-cough, by the fact that they suspected, on the ground of its presence, the disease in several cases in which the clinical diagnosis was made later. In addition to this, one of the experimenters, during the course of the work, was taken with severe coryza, with general symptoms; cough was slight, but a few attacks of a convulsive nature were noticed.—[Ex. .

THE FEAR OF DEATH.—Man occupies in view of death a situation that is peculiar, for he is probably the only being that knows he has to die. The battle against death spurs an immense number of men to study and work; and all the great intellectual and moral creations in art, religion and science have been produced under the influence of the feelings excited by the certainty of that event. Yet the psychology of the ideas and emotions relative to death is still to be constructed. Man is not normally preoccupied with the thought of death. While he is in full vigor of health and strength he is not afraid of it and takes little heed of it. The idea that he will have to die some day rarely enters his mind, and when it does present itself it is so vague and relates to an event so uncertain as to the time when it will occur that no distress is produced by it. This inertia of the thought of death in the strong man follows from the important agency exercised by organic sensations in determ-

ining the physical condition. We know that not only exterior phenomena acting on the sensorial organs that are directed to the outer world produce sensations in us, but changes of condition originating in the organism itself are also accompanied by sensations. The parts of the body that are by their situation withdrawn from the direct influence of external agents possess a special sensitiveness through which we perceive their changes of conditions.— [From "The Fear of Death," by M. Guglielmo Ferrero, in Appleton's Popular Science Monthly for December.

ABSORPTION OF FOREIGN SUBSTANCES BY THE FAUCIAL TONSILS.—L. L. Goodale gives an account of a series of experiments undertaken by him to determine whether or not infectious substances might be absorbed by the tonsils (*Journal of Eye, Ear and Throat Diseases*, Jan., 1898). Foreign substances were introduced into crypts of more or less hypertrophied human tonsils which were subsequently removed. The substance (carmine) was introduced into the crypts for the reason that if absorption occurs at all, it would more apt to be from through the delicate loose lining of the crypts than from the compact mucous membrane of the free surface of the tonsil. After excision the tonsils were hardened in corrosive sublimate, embedded in paraffine, cut in series, and stained with hematoxylin and aurantia. The carmine was introduced in water solution through a blunt pliable, silver canula. Twelve cases were examined: 2 immediately after injection; 1 after 20 minutes; 1 after 40 minutes; 2 cases after 1 hour; 1 after an hour and a half; 1 after 2 hours; 1 after 2 days; 2 after 5 days; 1 after 10 days. The two cases in which immediate excision was done showed no trace of carmine in the mucous membrane, and served as control cases. After twenty minutes, particles of carmine were found in lines extending from the crypts into the mucous membrane. The carmine lay directly contiguous to the leucocytes. In the other cases, extending the time to two hours, similar conditions occurred, the depth of penetration varying with the time intervening and the looseness of the structure. The distribution of carmine after penetration of the mucous membrane was between the follicles

Many polynuclear neutrophiles contained carmine particles. After five days the intercellular spaces on either side of the crypts were filled with carmine in linear arrangement. In the carmine infiltrated areas leucocytes were more abundant than elsewhere; many were filled with carmine, and many showed fragmentation of nuclei. Polynuclear neutrophiles were abundant in crypts and nuclear fragmentation was very marked. In the tonsils excised five and ten days after injection, similar conditions were found. The carmine was most abundant midway between the follicles. In sections stained for bacteria careful search failed to show these, and in no case was carmine found in the interior of the follicles organisms in the tonsillar tissue, except in the most superficial portion of the epithelium of the crypts. In one case, a carmine suspension in which a characteristic bacillus had developed was introduced into the crypts of a moderately hypertrophied tonsil, which was excised after two days. Although carmine particles were found in the interfollicular lymph spaces, no bacilli were discovered below the superficial epithelium of the crypts.

The author concludes: (1) Absorption exists normally in the tonsil and takes place from the crypts. (2) The path of the absorbed substance in the interfollicular lymph spaces is in the direction of the larger fibrous trabecular. (3) During the process of absorption, substances encounter phagocytic action on the part of polynuclear neutrophiles situated in and adjoining the mucous membrane. (4) Bacteria are normally present in the crypts, but are not ordinarily demonstrable in the tonsillar tissue. In view of these facts it seems possible that bacteria are continually making their way into the tissue, but at the moment of entering meet their destruction. Further, it is suggested that the inflammation of the tonsils may be due to absorption of irritant substances produced by the bacteria in crypts.—*Pediatrics*.

EDUCATION AND STARVATION.—President Harper, of Chicago University, recently in a public address, stated that scores of students of both sexes in that institution are compelled, in order to pay their way, to struggle along on the scantiest food, and that occasionally they succumb in the

effort. He urges strongly the necessity of proper nourishment for the body, if the owner of it is to be of any use in the world. Education will do little for the student if it is obtained at the expense of physical health and strength.

Chicago University is not the only place where physiques are ruined in the mad race for what is called education. All universities can furnish examples of what Dr. Harper calls strong-minded but weak-bodied men, and the schools are doing even more harm in this way than the universities. If the latter are most to blame it is because they set both the example and the pace. To make matters worse they persist in keeping up a survival of barbarism in the form of competition for prizes or relative standing, as if it were possible by any means known to human beings to tell in every case which of two men is the best.

Any reform movement looking to the substitution of more rational ideals of culture, must emanate from the universities, if it is to make rapid headway or some progress. All who teach lower institutions are trained either in a university or by those who have been so trained, and in this way vicious methods are disseminated and perpetuated. But who is to reform the teaching in the universities?—[Toronto Star.

Dental Excerpts.

CEMENTING BANDS AND CROWNS.—Dry the tooth and paint with shellac varnish before applying the cement. This gives durable adhesion, and should the cement dissolve the shellac will protect the tooth and prevent decay under the band. [W. G. Lange, in Dental Cosmos.

TO REMOVE RUST FROM IRON OR STEEL.—Make a mixture of one part of lactic acid and two of oil of lavender, and rub it upon the rust spots with a woolen cloth or tissue paper. On the following day the rust may be removed entirely, it is said, with the aid of a little of the oil. The iron is not affected in the least by this treatment, which cannot be said of mixtures containing hydrochloric acid. Iron and steel surfaces are best polished with very fine emery paper and oxide of tin.—[Dental Review.

FILLING PROXIMAL CAVITIES.—In many proximal cavities in front teeth the gold will show much less if the work is done from the lingual surface. This is more difficult, but practice makes it quite practicable, especially after you become skilled with in use of hand-mirror.—[Atlanta Journal.

CLEAN FLASKS.—In vulcanizing, put a coil of sheet zinc into the water in the vulcanizer and it will prevent the formation of much of the black oxide which is found on iron flasks. After the zinc has been used three or four times, the flasks will soil the fingers but very little when handled. [Western Dental Journal.

OFFICE ORNAMENT.—For a cheap ornament for the office or parlor, fill a tumbler with water more than saturated with salt. The salt will crawl over and cover the glass with a thick coating of beautiful crystals. The water must be renewed as it evaporates, and the salt too, if enough was not used in the first place. —[Atlanta Dental Journal.

NUMBER OF NERVES.—How many nerves are there? What a difficult question; for what we generally call a nerve is a bundle of many, which, passing on, divide and subdivide almost *ad infinitum*, and yet all this is but the unraveling of the bundle. It is now believed that there are not less than 10,000,000 distinct perfect nerves, each with independent function.—[Ex.

TREATING SLIGHT WOUNDS.—As a covering and protection for slight wounds on the hands, it has been recommended that an application of collodion and Peru balsam (1:10) gives excellent results. This will remain intact and be perfect for days; and washing the hands with soap and water does not disturb it in the least. It is easily prepared and yields satisfactory results.—[Digest.

TO REMOVE CROWNS.—Crowns set with varnish or gutta-percha can be removed thus: Take a small medicine dropper, put a white cotton string or wick in it, cut it off even with the tapering glass end, then draw in a few drops of alcohol and light it. You have a miniature alcohol lamp, with a flame about the size of a pinhead. Heat the tip of the tooth and remove it.—[Dr. R. E. Payne, in Items.

TO PREVENT PLASTER FROM STICKING.—Dr. L. C. Ingersoll advises adding to plaster of Paris from one-third to one-half of pulverized pumice, according to the strength of the plaster. By this means he claims that adhesion to the teeth is almost entirely prevented, and that there is less liability to fracture of the impression on its removal from the mouth.—[American Dental Weekly.]

A NOVEL METHOD OF TREATING EROSION OF THE TEETH.—Dr. A. C. Hewitt, of Chicago, brought a patient to our office recently where every tooth (28) had an eroded surface, labially and lingually. These were all covered with gold crowns about four years ago. All of the anterior teeth were so covered that their faces were exposed by cutting out the gold so that the patient (a lady) would not be disfigured when she opened her mouth. The case is a complete success. A slight erosion is beginning again on two of the faces, so that it appears that the same agencies are at work again. The case was the most striking we have ever seen.—[Dental Review.]

SAVING EXPOSED PULPS.—Many recently exposed pulps may be saved by touching them with a flake of tannin. It mummifies the surface and often prevents further pain, tenderness or other trouble, though, of course, this surface should be protected, and the cavity finally filled nearly to the surface with cement, and finished with metal. When not really exposed, but aching from a softening of the dental covering, instead of removing these layers of dentine besmear them with a very little thin paste of tannin, carbolic acid and oil of cloves. This will make a leather of these soft layers, and by placing over the application a disc of paper the cavity can be partially filled with cement and completed with metal.—[Atlanta Dental Journal.]

REMOVING PULPS PAINLESSLY.—It often happens that on removing pulps that have had arsenical application, it is found that near the end of the root or roots the nerve is extremely sensitive. This is particularly so in case of molar roots. What is the best method of treatment?

Mix on a slab as many cocaine crystals as a drop of

carbolic acid will take up. Keep the tooth dry and convey the mixture to the root-canals by means of a few shreds of cotton on a broach. Then, with a new broach of proper size, work up the canals little by little. Withdraw the broach frequently, going a little farther each insertion. Generally, after a few minutes of patient manipulation you will have the satisfaction of finding the broach reach the end of the root.—[R. E. Sparks in Dom. Dental Journal.

PROCESS FOR NICKEL PLATING.—There is no reliable method of depositing nickel from its cold solution, but a thin and adhesive coating may be given articles of brass, iron, etc., according to the Standard Formulary, by the following process: Boil in a copper vessel a saturated solution of zinc chloride and an equal quantity of water. While boiling add hydrochloric acid, drop by drop, until the precipitate at first thrown down is redissolved. Now add zinc in powder until the bottom of the kettle is nearly covered with a precipitate of zinc. The bath is now ready for the addition of a salt of nickel, and you may use either the sulphate or the nitrate. Add it in sufficient quantity to give the bath a strong green color. The articles to be nickeled are now hung in the bath by means of a zinc wire, or a strip of sheet zinc, and a few pieces of the latter are thrown in along with them. Raise the heat to a strong boil and continue it for several minutes, or until the articles are covered with a bright coating of nickel. The articles should be thoroughly cleaned and free from grease before being put in the bath.—[American Druggist.

CHINOSOL.—(Potassium oxyquinolin-sulphate.)—Bright yellow crystalline powder, a cresol derivative, readily soluble in water, non-toxic, not caustic. Odor aromatic, taste resembling phenol. Precipitated by alkalies. Does not coagulate albumen. Powerful antiseptic; alleged to be forty times more effective than carbolic acid, 25 parts i 1,000,000 preventing development of staphylococcus pyogenes aureus. Kossmann prefers it to sublimate and carbolic acid in gynecological practice and for disinfecting the hands. According to Professor E. Klebs it has had good results in the treatment of nasal catarrh, laryngitis, catarrh

of the bladder, ulcers, etc. A solution of 1-10,000 according to experiments of the London Pharmaceutical Institute killed the bacillus of typhus, diphtheria, cancer, pus and cholera within ten minutes. A solution of 1-500 will deodorize putrified meat. Chinosol is of great value to dentistry as an antiseptic mouth wash (1-1000) not affecting injuriously the gums or teeth. More recently it has been found of great service in connection with Turck's gyromel for cleaning the stomach, no astringent or toxic effects being produced by it. For the purpose indicated the solutions are made of a strength from 1-500 to 1-2000. The solution tarnishes metallic instruments.—[Dental Review.

A METHOD OF MOUNTING A LOGAN CROWN.—Dr. W. E. Walker recently described the following method of mounting a Logan crown: A crown suited to the case having been selected, and the root prepared for crowning, beveled a little beneath the gum at the labial aspect, the base of the crown is so beveled as to make a fairly close joint at the labial surface and have a wedge-shaped space between root and crown, about one-sixteenth inch wide at the lingual surface, with the apex of the wedge at the labial margin. A circular groove is next cut in the face of the root between the canal and the periphery, in which is fitted a band of 22k. 28-gauge gold. To this is soldered a thin plate of gold or platinum, which is burnished to the face of the root and trimmed to the size and shape of face of root, and perforated to admit the Logan crown pin. A similar plate of gold is next burnished to the beveled base of the porcelain, and a mass of Parr's fluted wax placed around the pin. The plate on the root is now warmed by throwing a current of hot air on it; the porcelain is also warmed and placed in position, the pin entering the previously prepared canal. The warmth causes the wax, which now fills the wedge-shaped space, to adhere to both plates so that all can be removed together. When cool, remove, trim away surplus wax and invest. By using Browne's "investment fiber" mixed with alcohol, the alcohol can be ignited, drying out the investment, while the solder is being prepared. Now flow 18 or 20k. gold solder into the space between the two

surfaces of gold, finish up and cement to place. This method gives the advantage of a band for strength, while it obviates the necessity for a band on the outside of the root, the shaping of which for the reception of a perfectly fitting band is difficult, disaergeable and sometimes even painful to the patient. The band being within the structure of the root cannot irritate the tissues, and there is no exposure of gold in recession of the gum.—[Atlanta Dental Journal.

ALTITUDE AND CONSERVED DENTAL PULPS.—Let a person for whom a tooth-pulp has been treated, protected and filled, go from a small to a greater altitude, and that same tooth that was perfectly comfortable before the ascent will give trouble. The atmospheric pressure grows less as the altitude grows greater, while the heart's action is not less strong, and it forces the blood into the circulation with so much greater power that the dental pulp will be sure to feel its bony confines and will cause pain. This fact was brought to our attention by Dr. E. S. Chisholm, who lived then in Alabama at a comparatively small altitude, and would go for the summer to Mount Eagle, in the Cumberland Mountains, where hundreds of people from the lowlands of Mississippi, Louisiana and Alabama gathered. He found much trouble from teeth so treated for those whose homes were in the lowlands.

Bearing on this subject we quote an extract from an article by Dr. Powers, of Denver, in the *New York Medical Journal*. In discussing the comparison, he advises the avoidance of operation where possible on persons who have recently come from the sea level, and especially if they show any cardiac weakness, owing to the increased action of the heart and lungs rendered necessary by the rarefied atmosphere. Pulmonary invalids, however, who are well at great altitudes frequently suffer if removed for operation, and in some cases such invalids might with advantage be removed from the sea to a higher level for that purpose. Hemorrhage in general is rather more profuse at great altitudes, particularly the oozing from the smallest vessels; bleeding, however, he considers a little better borne, and saline infusion less frequently demanded. The chance of asepsis

he considers equal in either situation, with a proper technique. Operation wounds in tuberculous patients he considers heal more rapidly, and the healing is more permanent in Colorado, and he remarks upon the small proportion of pulmonary invalids in whom surgical tuberculosis is developed.—[American Dental Weekly.

HANDLING CHILDREN IN THE OFFICE.—It requires a peculiar knack to handle children in a dental chair. They are wiser and more discerning than we often imagine. Harsh treatment will never make them our friends. While some will not submit, even under the most gentle treatment, the majority, however, are amenable to it. And after the first sitting, which should be short, and often only to get them acquainted with you, to let them see you are not the bear you were made to appear in their young imagination through dental office experience related by other members of the family. They may have heard: "You are going to the dentist; I am sorry for you; it's the worst place in the world; I hope that I will never have to go to another." With such remarks the child is familiar. Is it any wonder that they come to look upon the dentist as being something most awful.

Meet a little fellow away from the chair; engage his attention on something entirely foreign to a dental office; let him see that you are only a man. Get him to feel that he is with a friend; examine his teeth sitting in an ordinary chair; ask him to come and look at your big chair and take a ride in it; lift the chair and let it down; dismiss the little fellow with an appointment, and he will come to fill it without fear.

When he comes to fill an appointment, meet him in a friendly, social way. Tell him to go and get in the big chair, which he will do readily. Go to him and show him some of the "funny things" that he has been so curious to know about. Get his head on the rest; tell him that his tooth has bugs in it—funny bugs—and that you will get them out if he will hold still.

From one step to another, the most timid child can be carried successfully through tooth-filling. Give him the appointment card for the next sitting; make him feel that

he is of importance, and that you have confidence in him. Note the time for him for his next call; he will be on hand, a firm believer in you. If you find that you may have to hurt him a little, tell him so and ask him to be a brave little man. Deal perfectly honest with him in all things. Talk to him and not to his attendant.

Does it pay? Yes, in more ways than one.—[American Dental Weekly.

USEFUL HINTS.

TO RAPIDLY COOL IMPRESSION COMPOSITION.—Dr. Vajna, of Budapest, suggests using a spray of ethylchloride.

TO HASTEN OR RETARD SETTING OF CEMENT.—The addition of a very little finely powdered borax to the powder will change a rapidly setting cement into a slow-setting one. And, on the contrary, a drop of hydrochloric acid will make the cement set rapidly.—[Vierteljahrsschrift.

CARBONIZED COTTON as a permanent filling of root canals is advocated by Dr. Elof Forberg, of Stockholm. It can be sterilized by bringing to a red heat before use, and is an absorbent of gases. For enlarging small canals he uses sulphuric ether as prepared by Herbst. A few drops of concentrated sulphuric ether are placed in a clean bottle and ether is added to saturation, the mixture is well stirred with a glass rod and the surplus allowed to volatilize.—[Dental Record.

News Miscellany.

DR. TODD, "The King of Dentists," recently had to leave the State of Indiana for practicing without a license. "The King" was also accused of placing brass crowns on patients' teeth.

THE Indiana State Board of Dental Examiners recently succeeded in having a dentist of Dale fined \$20 and costs for practicing dentistry without a license or permit. Also a dentist of New Albany was fined \$20 for not having his permit recorded.

THE Evansville, (Ind.) Dental Society includes as part of its purpose the practice of co-operative buying of material commonly used, thus enjoying a considerable saving to each member.

M. PHISALIX, the French authority on the venom of insects and reptiles, has established beyond a doubt that the poison of the hornet renders one immune to that of the viper.—[Modern Medical Science.

AN OPEN SAFETY PIN SWALLOWED.—Dr. Joseph Clements (*Pediatrics*, June 1st) reports the case of a baby seven months old, who, on July 21, 1890, swallowed an open safety pin. There was some fever and sore throat, with gagging, coughing and hæmoptysis for awhile, but afterward the child appeared well, and the pin was passed on August 22d. No bloody stools were seen during the passage of the pin, which occupied thirty-two days. The child is healthy and well.—[New York Medical Journal.

BEAST COMMUNION.—A young lady traveling to Moscow constantly kissed and fondled a neat little dog belonging to another lady. The little animal seemed well pleased and acted very mannerly, but all remarked that it was sneezing constantly. After arrival in Moscow the young lady was first affected with a redness of the tip of the nose, which did not yield to any remedy; then the nose began to be painful, inflamed and began to secrete mucus. The physician who was consulted diagnosed the case influenza. But as she constantly became worse, and the ulceration increased, a consultation was held, when the microscope revealed a case of glanders, which had evidently been transferred from a horse to the dog.—[Medical Age.

ETHER DRINKING is spreading on the continent of Europe. The vice is most easily acquired. A patient may have a headache, and a handkerchief steeped in ether is put under his nose. Relief comes quickly, he hails the drug with delight, and gradually the habit is acquired, until often an overdose results in death. In certain parts of Ireland, where ether drinking is common, there are regular ether shops, where they retail a standard mixture of alcohol and

ether of special potency. The railroad in the little district of Crookstown carries every year 200 tons [?] of ether, and this is only half the local supply. Two merchants of neighboring villages sell every year 4,500 pints of ether. Everybody in that part of Ireland drinks ether; and in the agricultural towns the air is charged with the odor of the drug on market days, and its vapor is constantly detected in the cars of the railway.—[Health.]

PROPOSED DISQUALIFICATION OF FOREIGN MEDICOS IN ITALY.

A correspondent writes to the London *Times* from Florence, under date of April 19th, says: "It is well known that the Italian government has for some time past contemplated the disqualification as practitioners in Italy of all foreign medical men who have not taken an Italian degree. This unwise policy, however, seems hanging in abeyance, the authorities being apparently reluctant to put it in force in view of the great pecuniary benefits resulting from the presence of English and American visitors and residents, many of whom would be deterred from coming to Italy at all if they were unable to command the services of doctors of their own nationality.

"With regard to dentists the government is credited with different views, and it is said that prohibitive enactments are very shortly to be adopted in their case. This would surely be a very short-sighted and unjust step. Italian doctors stand at the head of their profession in Europe; but Italian dentists are greatly inferior, and in many ways far behind the times. The reason probably is that doctors are supposed to be more important to foreign residents than dentists; but surely there are many English people and Americans who are greatly dependent upon dental surgery, and would feel serious misgivings at the idea of living in a country where in case of urgent necessity and suffering they would only have an ignorant and unskilled operator to resort to."—[Dental Record.]

THE X-RAY OR THE BULLET.—The Roentgen rays have recently played a curious part in a murder trial in America. A jury in Elmira acquitted of murder a man who was on trial accused of this crime. The man whom the accused

shot was said to be improving a month after the shooting, when the x-rays were used to locate the bullet which was in the brain. Death followed, and the defense alleged that the death was the result of the action of the Roentgen rays.

The murderer fired the shot, and in consequence the victim died. The felonious intent was accomplished; and whether with or without the assistance of an accomplice or an accessory after the fact, makes not the slightest difference in law or common sense. These points are undisputed. Would the man have died if he had not been shot? And yet the diabolical ingenuity of lawyers can so muddle the brains of judges and juries in these days that the essentials of such a case are utterly unrecognized.—[Modern Medical Science.

Laughing Gas.

“CHILDREN CRY FOR IT.”—Mother.—What on earth are you doing to the child, Bridget, to make her cry so?

Bridget (who has just slapped her).—I s'pose it's the medicine, mum; the 'labul' says how children cry for it.

PREVENTIVE MEDICINE.—Doctor (just arriving at the scene of the accident).—What on earth are you holding his nose for?

Pat (kneeling beside the victim).—So his breath won't lave his body, of course.

A FATAL MISTAKE.—“Yes, madam, it is a fearful mistake to neglect your teeth. I lost a great deal of money through an oversight of that very sort. I had a rich uncle who promised to make me his heir. He went to sea. During a sudden storm he fell overboard, and a shark at once grabbed him. My uncle was a stout man; the shark was old. Moreover, he had never taken care of his teeth, and they were wretchedly poor. In short, he couldn't hold on to my uncle, who kicked himself loose from the man-eater and was picked up by a boat.”

“But how did you lose the money?”

“My uncle lived long enough to alter his will. Oh, that neglectful shark.”—[Cleveland Plain Dealer.

College Notes.

COMMENCEMENT EXERCISES OF COLLEGE OF PHYSICIANS AND SURGEONS.

THE commencement exercises for the third year of the College of Physicians and Surgeons of San Francisco were held at Native Son's Hall on Thursday evening, July 14th. The exercises represented the graduating classes of both the medical and dental departments. Prof. J. R. Laine, president of the Faculty, presided and conferred the degrees, and Fleischman's orchestra furnished music.

Rev. Dr. John A. B. Wilson delivered the invocation and benediction; Prof. Melville B. Anderson, of Stanford University, read a paper on "Nature and Functions of Literature," and Rabbi J. Nieto delivered an address, "Healing—A Divine Art," with such earnestness and so marked by liberality of thought and expression as to arouse an enthusiasm unusual to such an audience as was present.

In 1897 the College graduates numbered eleven from the medical, and five from the dental department.

The following are the '98 classes;

MEDICAL DEPARTMENT.

Howard Marion Block,	Mary McNeil, M.D.
Mary Bird Bowers,	James A. J. MacDonald, M.D.
Victory A. Derrick, M.D.	Frank Paterson,
Laura B. Hopkins-Hadley,	Herbert R. Smith,
William John Jackson, Ph.G.	Frank Denton Walsh, M.D.
Tryphinné Bayard Janes, M.D.	Charles Larimer Weitman,
John Joseph Keefe, Ph.G.	Adolf Fredrik Warner,
Belle M. Lee, M.D.	Hermon Fowler Wilson.

DENTAL DEPARTMENT.

Ernest Bissett Boyes,	Norman Douglas Kelley,
Edward Evens Brown,	George Thomas Milliken,
Marcellus Edmund Clarke,	Charles Gillespie Noble,
Aura Théodore Covert,	Herbert Bruce Ward.
Charles Moses Griffith,	

ALUMNI ASSOCIATION BANQUET.

THE Alumni Association of the College of Physicians and Surgeons of San Francisco gave its first annual banquet at the California Hotel on Thursday evening, July

14th. After the close of the graduating exercises of the classes of the two departments at Native Sons' hall the members of the Association, accompanied by the faculties of the two departments, repaired to the hotel, where after a cheerful dissection of fish, fowl and flesh, and an evaporation of liquids, the following toast-list was recited by Dr. F. D. Walsh as toast-master:

"Greeting".....	Frank Denton Walsh, M.D., Toast Master.
"The College"....	Prof. Winalow Anderson, A.M., M.D., M.R.C.P. Lond.
"The Medical Class of '98".....	William J. Jackson, Ph.G., M.D.
"The Faculty".....	Prof. J. R. Laine, M. D.
"Doctors and Literature".....	Prof. D. A. Hodghead, A.M., M.D.
"The Alumni".....	John Joseph Keefe, Ph.G., M.D.
"Advancement of Medical Science".....	Prof. E. E. Kelly, Ph.M., M.D.
"Military Surgeons".....	Prof. S. O. L. Potter, A.M., M.D., M.R.C.P. Lond.
"Good Fellowship".....	Prof. Thomas Morfrew, D.D.S.
"Dental Class of '98".....	Aura T. Covert, D.D.S.
Toast.....	Prof. W. F. Southard, A.M., M.D.

NOTICE TO INTENDING VISITORS TO THE PACIFIC COAST DENTAL CONGRESS.

THE Committee on Transportation of the Pacific Coast Dental Congress desires that everyone intending to attend the Congress via San Francisco, to notify it in order to facilitate arrangements in the matter of transportation. Every effort is being made to make this meeting a great success, and to those who attend a most profitable and pleasant time is assured. The Southern Pacific Co. has made a special round-trip rate of \$30, which includes berth in Standard sleepers. The present arrangements are to leave San Francisco on the 7:30 o'clock train of Saturday evening, August 20th, which will arrive in Portland on the following Monday morning in time for the opening of the Congress. Get ready to go, and so notify the chairman of the committee,

DR. FRANK C. PAGUE,
Spring Valley Building, San Francisco.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

LESSONS FROM OUR STATE MEETING.

THE recent meeting of the California State Dental Association, aside from being a success from both social and professional standpoints, demonstrated three or four facts worthy of consideration.

It proved conclusively that occasional meetings held outside of San Francisco will be well attended and lead to a promotion of good fellowship and professional interests beneficial alike to the residents of the place in which the meeting is held and to all those who come from other localities. It provides a ready excuse, if one is needed, for the city practitioner to leave, if for only a few days, the confinement of his office, the noise and rush of the streets and the general wear and tear of a busy practice, partially unknown at least to those whose field of labor lies in quieter places amid the more restful surroundings of pure air, green trees and shaded streets.

We realized too how much good earnest work may be crowded into three or four brief days, and saw more plainly than ever the interest excited by and value of good clinical instruction, and feel safe in saying that at no other meeting ever held in this State has there been presented a more varied or valuable list of clinics, watched with greater interest by a more attentive and considerate audience than encouraged the clinicians at the recent meeting.

The literary portion of the program was perhaps too long, for a want of time making it necessary to read several important papers by title only, and it was evident that there was lack of preparation for the fullest discussion of

some of the subjects. We would advise those presenting papers at future meetings to prepare them far enough in advance to give the chairman of the program committee time to arrange the program before the meeting is called to order, and that each essayist arrange with one or two fellow members to properly open and prosecute the discussion of the subject he is to present.

There was, perhaps, no greater interest manifested over any one subject than over the consideration of making certain changes in the State dental law. After some slight misunderstandings had been satisfactorily adjusted, it became evident that there was a general conviction that the present law is not sufficient; that it does not do for the profession all that may justly be expected of a good law, and that radical changes are eagerly demanded.

The State Board of Examiners and a regularly appointed committee have this matter under consideration, and it is to be hoped that at the next session of the Legislature such changes will be made in the law as will raise the standard for admission into the dental profession in this State, so far as examination by the Board is concerned, to as high a degree as seems best at the present time, and such enactments secured as will lead to the speedy arrest and severe punishment of those who are openly violating the law.

The unprecedented gain in membership, which was one of the features of the meeting, teaches perhaps, the greatest and most satisfactory lesson of all: namely, that it is becoming a recognized fact that organized effort is essential and necessary to the growth and development of the best qualities of both the profession at large and each of its individual members, and that the labor of years in which the older practitioners have been engaged is bearing good fruit in its influence on the younger members of our profession.

BOOKS RECEIVED.

- A TREATISE ON PLATELESS DENTURES. By Samsiol, practicing dentist in Stockholm, Sweden. Translated from the Swedish by D. O. Bell. Forty-eight illustrations. Published by the author at Stockholm. 1898.

NOTES.

SEE notice from the Secretary of the Board of Dental Examiners printed at ad. page 8.

THE Southern Branch of the National Dental Association has already began preparations for its second annual meeting, which will be held at New Orleans, beginning February 9, 1889.

ERATUM.—In the report of the State Dental Association, the initials of the Dr. Knowles named on the Obituary Committee should read W. A. instead of "S. E.," as printed at page 349.

THE receipt of Vol. 2, of No. 1 of *The Dental Century*, published at Madison, Wis., with Wm. Gird Beecroft and staff as associate editors, is acknowledged. The *Century* is a handsome journal and aims to represent the dental literary interests of the Northwest.

"BRING your wife, or somebody else's wife and come; you will never regret it." This is the way the executive committee of an inland tri-State dental meeting closes its invitation. Rather ambiguous, unless the loaning of wives is a custom in Ohio, Michigan and Indiana.

THE final meeting of the General Committee of the Pacific Coast Dental Congress was held on Tuesday evening, July 26th. The reports presented by the sub-committees indicate that from the preparations in progress the meeting should repeat in all respects the success enjoyed by the 1897 convention. All who intend going *via* San Francisco should read the notice printed at page 368.

DR. J. N. CROUSE, chairman of Executive Committee of National Dental Association, which meets at Omaha, commencing August 30th, says: "I wish to state, owing to the conflicting stories in circulation regarding the lack of accommodations at Omaha, that I recently visited there to make a personal inspection of the hotels, and found the accommodations ample and rates reasonable."

PERSONAL.

DR. E. E. PERRY is now located in the Parrott building.

DR. E. M. WESTPHAL has moved into the Parrott building.

DR. FRANK C. PAGUE and wife are enjoying their annual vacation at Aetna Springs.

DR. A. T. REGENSBURGER, who went to Dyea, Alaska, early in the spring, has returned to San Francisco.

DR. C. DEICHMILLER, who left for the Klondyke last April, recently returned very much improved in health.

DR. F. J. BETHEL, of Bakersfield, is now in New York City, taking a post-graduate course in dentistry. Upon his return the Doctor will locate in Stockton.

DR. J. J. GUISTI left for the Philippines on July 12th, where he will practice dentistry. The Doctor also intends to pay professional visits to India and China.

DR. F. A. ROBINSON, of Sanghai, China, an associate of the dental firm of Ivy & Robinson since 1891, arrived last month on a visit to the United States. The Doctor intends to return in September.

DR. L. L. WHITE, President of the L. L. White Tooth Crown Co., has returned to the city from New York city, where the company has established a manufactory, and is meeting a flattering demand for its product.

DR. PAUL C. JONES, a graduate of the dental department of both the U. of C. and University of Pennsylvania, has opened an office on the fourth floor of the Parrott building, with the latest and most approved appliances.

DR. E. E. BAIRD, of the class of '94, U. of C. College of Dentistry, has been nominated for county superintendent of schools of Fresno county, by the Republican convention recently held in that county. As the Doctor was not an

aspirant for the office, he feels greatly honored at having received the nomination, as there were three other names before the convention.

DR. WM. LOUISSON, a U. of C. dental graduate, having recently returned from Harvard with the D.M.D. degree, has decided to establish a practice in San Francisco.

DR. E. M. JONES, a graduate of the class of '98 of the dental department of the University of Pennsylvania, has established a newly-furnished office in the Parrott building.

DR. W. W. EASTMAN of Sonora, accompanied by his brother, O. M. Eastman, recently passed through San Francisco, on a six-weeks visit to the "old folks" at Dexter, Maine, whom he had not seen for twelve years.

DR. WILLIAM H. WARE, a graduate of the U. of C. College of Dentistry, having enlisted in the hospital corps of the United States army, has had the good fortune to have dental professional merit recognized. Colonel Lippincott, surgeon-in-chief with General Merritt's army in the Philippines, prevailed upon Surgeon-General Sternberg to authorize the appointment and equipment of a dental surgeon for Merritt's army, and Dr. Ware was detailed to such position, with two assistants, Drs. G. F. Ames and J. A. Gibbon, to aid him. The sometime agitation for army dentists has assumed a practical condition here, and Dr. Ware deserves much credit for his personal efforts in this direction, which, from what we have learned, he instigated in this instance, and with much energy and tact achieved this successful result.

OFFICERS OF THE STATE DENTAL ASSOCIATION.

THE GAZETTE takes pleasure in presenting to its old and new readers a photo group of the officials of the California State Dental Association for 1898-9. While several of the faces may be familiar because of their former presentation, they are deserving of all the distinguishment they

have heretofore received, and a reiteration of the brief professional record of each will be acceptable at this time.

FRED HARRIS METCALF, D.D.S.,

President of the Association, since the first sketch of him, as second vice-president, printed in the GAZETTE of January, 1896, has added to his laurels as an associational worker. During 1897 Dr. Metcalf received additional recognition of his merit by being elected president of his home organization—the Sacramento County Dental Society—and the appointment to the State Board of Dental Examiners by Governor Budd. And Cupid has also rewarded the Doctor for being genial and handsome by bestowing on him a charming and companionable wife.

Briefly, President Metcalf's educational and professional history is: Born at Northfield, Vt., April 26, 1863; graduated from high school in 1881; commenced study of medicine with N. W. Gilbert, D.D.S., of Northfield; graduated from Boston Dental College in 1885. After some travel he arrived at and located in Sacramento in 1889. In 1891 he identified himself with the State Association, and his conspicuous contributions at each session have earned for him his proud position.

WALTER FREDERIC LEWIS,

First Vice-President, was born in Sheridan Centre, New York, in 1844. His parents moving to Ohio during his childhood, young Lewis was closing his academic educational career when the rebellion began. Responding to the patriotic enthusiasm of youth, he enlisted in the 27th Ohio Volunteer Infantry, serving with Fremont through the Missouri campaign. Owing to disability the boy soldier received his discharge in 1862. Subsequently entering the dental office of Dr. Griffin of Hamilton, O., he served a three years apprenticeship; also pursuing his study at Evansville, Ind. The Doctor commenced practice at Greenville, Ohio, in 1866. Removing to Minnesota in 1870, and becoming identified with associational work, he eventually became president of the Minnesota State Dental Association. Thereafter, moving to Milwaukee, in 1878, the Doctor's activity in society work also earned for him the presidency of the Wisconsin State Dental Association. Ten years later coming to California, Dr. Lewis located for a short time at Santa Cruz, subsequently settling at Oakland.

The Midwinter Fair Dental Congress of 1894 was one of the enterprising suggestions of Dr. Lewis, which, taking form, gave him the glory of an immense amount of work as chairman of its principal committee. Twice president of the Oakland Dental Club, vice-chairman of the General Committee of the Pacific Coast Dental Congress, and chairman of same committee for Congress of 1898, and a membership in San Francisco's societies, exhibits the fact that the Doctor has merited the recognition of being a most enthusiastic, energetic and intelligent worker for the welfare of his profession. Dr. Lewis has a happy family association, with four adult children and grandchildren to cheer him, and still enjoys a youthful spirit and an energetic body.

ALVIN FOX MERRIMAN JR., F.S.C.,

Second Vice-President of the Association, is a Kentuckian, having been born at Stafford, Lincoln county, October 14, 1858. After receiving a good schooling he entered upon the study of his profession in the office of his father at his birthplace. In 1879 the Merriman family came to California and located in Oakland, where the Drs. Merriman Sr. and Jr. entered into business partnership, and have enjoyed a large and lucrative practice. Naturally progressive and ambitious to excel in his chosen vocation, Dr. Merriman Jr. became notably active in associational work during the Midwinter Fair Dental Congress. As a charter member of the Stomatological Club and a member of the State Dental Association he has been an interesting and instructive contributor to dental literature, and, as a clinician, has demonstrated surpassing manipulative skill as an operator, and from the encomiums of his fellow-professionals has reason to feel that he is on the highway to further eminence in his professional career. The Doctor is a devoted benedict, having married in his home city in 1891.

ALBERT MINOR BARKER,

Third Vice-President, was born in Wolworth county, Wisconsin, July 18, 1859. His parents moving to Dodge county, Minnesota, during his infancy, they located on a farm where he was enabled to develop a strong and tall physique. Attending school during the winters and farming during the summers, the Doctor gained a practical knowledge of life's demands. In 1870 the Barker family came to California, when young A. M. was sent to the University of the Pacific for two years. Entering the office of Dr. W. F. Gunckel, of San Jose, a practitioner of forty years experience, Dr. Barker served a three-years course of apprenticeship, and then succeeded to a partnership with his preceptor, which continued until the death of Dr. Gunckel in 1894, since which time he has alone conducted the practice. In 1893 Dr. Barker took a post-graduate course at Haskell's college in Chicago. The Doctor is married, happy and, logically, progressive and prosperous.

WILLIAM ZADOC KING, F.S.C.,

So admirably fits the office of Recording Secretary by his prompt and courteous attention to its functions that, although the present is his fourth term, no apprehension is felt that because he is a veritable king in good fellowship he has any monarchical ambition to usurp the Association's recordership. So, when someone says, "I nominate the incumbent, Dr. King," another voices "I second it; move that the nominations close, and that the secretary cast the ballot;" and that settles it.

As the Doctor was "written up" in the GAZETTE in 1896, a summary will serve now. Born at Chardon, O., in 1848; commenced study of dentistry with Dr. E. C. Hobart, of Ottawa, Ill., coming to California in 1870, he practiced in several localities, finally settling in San Francisco in 1885. Became a member of the State Association in 1878, and held various offices until he gained the presidency in 1892. Dr. King has also been an active member of the local societies.

THOMAS NELSON IGLEHART,

Treasurer, is another of the Association's officials who enjoys its entire confidence. Having once honored him by electing him president, it was

subsequently considered that he would prove an ideal custodian of its funds, and for the fourth time he has been unanimously chosen to the treasurership.

Dr. Iglehart was born in Middletown, O., in 1842; took a preparatory course for medical college. Going to Chicago in 1868, he commenced the study of dentistry; he practiced in that city till 1880. Arriving in San Francisco in 1881 he has been continuously in practice ever since. Shortly after his arrival in the city he became a member of the San Francisco Dental Association and the State Association, and has been the presiding officer of both societies.

FRANK LAFAYETTE PLATT, D.D.S.,

Corresponding Secretary, made his debut on life's stage at LeRoy, Genesee county, New York, August 22, 1864. Coming with his parents to California in 1873 the family settled in Vacaville, Solano county, where the ten succeeding years of his boyhood were spent in the usual function of education getting and minor employments, rounding out his school course by graduating from a local college in 1883. Entering the dental office of Dr. N. B. Upchurch, of Vacaville, an apprenticeship of nearly two years impressed Platt with the value of a college course in the technique and science of his chosen vocation, and in September, 1888, he entered the Philadelphia Dental College and graduated in the class of '90. Returning to his California home, Dr. Platt commenced practice. Moving to San Francisco a few months later—June, 1890—he established an office, where he has remained to this time.

During the years 1891-2-3, Dr. Platt held the chair of Dental Surgery in the Hahneman Hospital College of San Francisco. As a member of the State Dental and San Francisco Dental Associations, the Stomatological Club and the Pacific Coast Dental Congress, Dr. Platt has exhibited an unusual amount of enthusiasm, and has proved himself to be at all times a ready and cheerful worker for the advancement of the welfare of his profession. He is now president of the San Francisco Dental Association and a director of the Stomatological Club, and numbers among his other labors that of editor of the GAZETTE. M. L. F.

Publisher's Notes.

TO THE GAZETTE'S READERS.

THE regular edition of the GAZETTE has been doubled with this issue, and a considerably increased number of reading and advertising pages have also been added. The adoption of a new cover page is intended to mark the beginning of a continued improvement of the magazine. The amount of original literature now at the disposition of the GAZETTE compels its immediate enlargement, and it is proposed that it will meet all opportunities to place and keep it in the front rank of dental magazines. Subscriptions begin with January and July numbers. Send in your name.

Pacific Medico-Dental Gazette

VOL. VI.

SAN FRANCISCO, AUGUST, 1898.

No. 8.

Original Papers

WHY WE NEED A BETTER STATE DENTAL LAW.

BY FRANK L. PLATT D.D.S., SAN FRANCISCO, CAL.

[Read before the California State Dental Association, June 22, 1898.]

THE dental profession as it exists in California today presents to the student of contemporary scientific development four separate and distinct classes of practitioners, each worthy of special study and consideration.

In the first class are those who are legal practitioners by reason of the "Act of 1885," men who, under the instruction of preceptors or by their own unaided efforts, learned the rudiments, and later, by experience and observation, developed the intricacies of their art and became, from a practical standpoint at least, well-educated professional men. To the accomplishments, discoveries and inventions of some of these our profession is deeply indebted. They are, so to speak, the pioneers of dentistry in California, and few of them have disgraced their calling.

Yet, with all their industry, integrity and ability, many of them have felt they were not doing their best; that they were, in comparison with men of wider scientific and literary attainments, being left behind in the keen competitive struggle for supremacy; and for this reason many of them are today enrolled as students in our colleges, and are spending in many cases time that should be hours of rest in acquiring the education denied them by their earlier cir-

NOTE.—The editor and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

cumstances. They could pay no higher tribute to their profession and are worthy of our sincere respect.

In the second class, let us place those who are licentiates of the Board of Dental Examiners; a class of practitioners increasing in number every year; some bright and competent, some dull and incompetent. Many have passed the examinations before the various Boards but poorly equipped to render just and competent services to their patients. Some have passed after an altogether too brief period of instruction; some have passed after failures in college examinations; some have passed strictly on their merits, and others have passed—only Heaven and the Boards know how or why. They are legal practitioners all, but they do not as a class constitute an efficient or healthy member of the dental body at large.

The third class consists of the graduates of dental colleges: men and women who have had the opportunity to acquire the best and most efficient training, both theoretical and practical, afforded by the educational institutions of our profession. They should represent in dentistry, as in every other liberal profession, the highest element of professional attainment, and many of them satisfy in this regard every just expectation. To them should the public and the profession look for the greatest proficiency in dental science, and on them should devolve the responsibility for keeping clean and above reproach the fair fame of our profession.

In the fourth class let us place the outcasts of our profession, the illegal and unethical practitioners.

In this class are those who have violated their oaths, forgotten their colleges, debased and slandered their profession and brought upon their respectable and ethical brothers the censure and scorn of an outraged public. In this class are those who have sacrificed a clean reputation and the honor of their calling to a sordid thirst for gain; and those also, who, finding themselves, owing to neglect of opportunity, or insufficiency of education, unable to successfully compete for patronage with their better equipped

fellows, have resorted to all the subterfuges of the advertiser's art to get a practice they do not deserve, to which they cannot do justice, and are incapable of retaining or developing.

The first class is year by year passing away, and perhaps within the lives of some of us may have become but a memory of pre-existing conditions; a fact but not a living factor in the history of our profession.

The second class is steadily but surely growing, and while in many instances most worthy members of our profession may be found in its ranks, the incontrovertible fact exists that through this gateway it is possible to enter our profession without truly adequate preparation, and without the ability to perform for suffering humanity the class of services it has a right to expect from every member of the dental profession. The law as it is written does not question how the knowledge is obtained; it may have been by *three-years'* or *three-months'* study, and it may represent true ability, or exactly its reverse, but so long as the applicant can answer a certain set of questions propounded by the Board and perform in a more-or-less satisfactory manner a certain number of required operations, he is eligible to admission to membership in the dental profession. That this is the law is a fact; but you know, and I know that it is not right, nor just, nor fair—use whatever adjective you please—to bring such men into competition with those who have spent two, three or more of the best years of their lives acquiring the right to practice dentistry and the ability to minister to the wants of their fellows. The reputable dental colleges throughout the United States demand a three-years' course of study before granting a diploma; and some of our ablest dental educators think very justly this is not a sufficiently long course of study to properly fit a student to enter his profession, and maintain to the best advantage its practical and theoretical requirements. Granting this to be a fact, I leave it to someone abler than myself to harmonize for public and professional safety the differences that must exist between

an honest college graduate and a six-months' student who has "passed" the Board, merely suggesting as a remedy that every student appearing for examination before the Board be required to produce evidence of having completed a period of study under a reputable preceptor at least equally as long as the prescribed college course.

The consideration of the third-class practitioners leads us to ask if the possession of a diploma granted in good faith and honesty by the faculty of a reputable college is necessarily a criterion of ability on the part of the recipient?

If all students were equally honest, even though unequally prepared by previous training and natural ability to graduate from the college of their choice, this question might fairly well be answered in the affirmative. But unfortunately there is present in every college a class of students who are determined to get their diplomas by fair means or foul, and look upon the end as justifying the means, no matter how devious or dishonorable they may be. The faculty cannot always discriminate. They are placed in much the same position as is the Board of Examiners. If a student seemingly complies with the legal requirements of the college and the State he must be granted his diploma, worthy or unworthy though he may be. This state of affairs may continue to exist to a certain extent, no matter what laws may be enacted, but if every graduate were compelled to pass a supplementary examination before the Board of Examiners before being granted a license to practice the general tone of the profession would be greatly improved, and the college whose graduates could not pass the Board's examination would speedily find a means of raising its standard of requirements for graduation to such a degree that failure before an honest Board of Examiners would be an impossibility.

It is in this matter of granting licenses to practice to graduates and students who pass the examination before the Board that our present State law shows its greatest weakness. Many of those who have given the matter some

thought and study are of the opinion that the faculty of a college should not constitute the final examining board before whom the student must come before entering practice. Leaving out the question of prejudice and the very natural desire of the college to graduate as large classes as possible, there is always to be taken into consideration the fact that it is much easier for a student to use dishonest means in passing an examination before a faculty with whose methods he is reasonably familiar than it would be in passing a no more severe examination before a board unknown to him.

The granting of licenses to any one of good character who can pass the examination, regardless of previous training and experience, is an error in judgment which will do more to keep down the standard of our profession than any other factor with which we have to compete, and it will do more to increase the number of the fourth class of practitioners than any other evil now in operation. No legislation will entirely abate the nuisance of the fakirs and illegal and unethical practitioners; they must be left to work out in a measure their own destruction through their own dishonesty and ignorance; but any legislation which will raise the standard of education in our colleges, and demand of licentiates a reasonable period of practical preparation for actual practice, should be welcomed with pleasure and receive the hearty encouragement of all who desire to see our profession retain the honors already won, or merit others yet to be bestowed.

There is also another defect in the present law, which is perhaps in more serious need of correction than any other, namely, the method by which members are appointed to the California State Board of Dental Examiners.

To the lay as well as to the professional mind it should be patent that those who evince the most lively interest in the welfare, progress and government of their profession, and those who know best its requirements, are naturally those best suited as examiners to stand on guard and say

who shall and who shall not legally enter our professional ranks.

It is absurd to say that any man, no matter how earnest his purpose or unswerving his integrity, who does not intimately know the requirements of dentistry as it exists to-day, and who is not well acquainted with the character, attributes and general proficiency of the men he appoints, is capable of forming a board of examiners that will execute with satisfaction or justice the duties of its office.

Our State Board of Dental Examiners is now appointed by the State's chief executive, and if the statement I have just made is correct we need not expect always to have a capable or efficient Board.

The medical societies of the State of California have by virtue of the Act of April 3, 1876, as amended April 1, 1878, the right of appointing their own boards of examiners. They not only have this right, but it is made compulsory for them to do so. No other person, persons or corporation may exercise this right; it lies wholly within the domain of the interested profession, and the State dental society should have, for the reasons I have already enumerated, the same right and privilege, and, having them, should appoint to this position of honor and trust only those who have sufficient vitality, interest and professional patriotism to be members of the State Dental Association.

Now I have called attention to the various classes of practitioners constituting our profession, and the fact that they exist and have a legal reason for so doing is a strong argument in favor of a better law than we have today. We never can reach the sphere of our highest usefulness so long as we have in force such widely divergent standards of admission into our profession. Leaving natural ability out of the question, there should be demanded of each applicant for admission to our ranks a certain amount of previous training, which should place him, theoretically at least, as nearly as possible on an equality with his fellows. Until this is done, and the California State Dental Association has the right to appoint or recommend appointments

to the State Board of Examiners, we cannot hope as a body to attain our greatest proficiency, nor aspire to greater heights than may naturally be reached by a misgoverned and struggling profession.

DISCUSSION.

Dr. W. F. Lewis.—Mr. President, so much was said last night on the subject of dental legislation that I feel as if much of its thunder had been exhausted, and perhaps there is not much left to say. The first part of Dr. Platt's paper I think needs no discussion. The classification of dentists is very admirable, and any emphasis or comment on it would be superfluous. I do not remember to have ever heard a more perfect or admirable classification of dentists than that just presented.

Regarding the formation of an ideal dental law, it seems to me that it is almost impossible to frame—to get into shape such a law as will meet the approval of the Board. At first glance at the subject it seems to be comparatively easy; but we must remember that the States which first formed dental laws are now finding that their laws are defective. The oldest dental laws are defective, admittedly so by those who were their framers. I believe that if we were to gather today all the wise Solons of California, give them this subject and ask them to frame a dental law, we still should find imperfections in it; there would be criticisms on it. However much I believe that there should be a better dental law, an improved dental law, I don't believe that we can get what some might deem an ideal or perfect law. We can from time to time have amendments made without, it seems to me, doing away entirely with the old law; have the old law improved point by point without attempting to abrogate it and create a new law. That has been a thought I have had, especially since we discussed the subject so thoroughly two years ago.

Just a word about the conditions or the qualifications of the dentist for practice under the State dental law. Now, as our law stands today, a reputable graduate from a reputable college may receive a license to practice without any further examination. On the face of it it seems just, and

yet the facts are that it is not always just. I will tell you why. There are today many men practicing in the dental profession who have come into the field of dentistry within the last few years, who have gone directly to the college and have taken their two-years' or three-years' or one-year's course, as the standard requires, and have entered the field as full-fledged dentists without that practical training that a dentist must have, which he receives in an office. I believe today that the best dentists in the United States are those who have not only graduated from a college but who have also served a pupilage in a reputable dental office; because I believe and I know that there are certain elements in the dentist's training that cannot be obtained in any college. There is no doubt about it. Take, for example, the Chicago College of Dental Surgery, with which perhaps I am more familiar than any other. I remember the time that sixty or seventy students used to gather about the clinical instructor. Now, will you pretend to tell me that any particular student can get much of the detail of the teaching with such a mob about, such a crowd, at the distance they are obliged to be from the instructor? Therefore I say that there ought to be some condition placed in some way so that any man who enters the dental profession should first serve his pupilage in a dental office and get this rudimentary education, which, as I said before, he cannot get in the college. Now, I remember to have heard a gentleman, who occupies a high position in one of the large cities of the East, a graduate of a reputable college, a practitioner that stands in the front rank in the dental profession, say time and time again that without the three-years' training that he got in a dental office he would not have the equipment that he has today to practice his profession. So I think that many times injustice is done to those men who have perhaps unfortunately from force of circumstances failed to get a degree when degrees were very easily obtained. Some of you remember when a three- to a six-months' course was all that was necessary to go through. I know of a dentist who lives on this coast who had only a three-months' course; a reputable man. It was under favorable circumstances that he received his degree. It seems to

me that we should in some way or other make a proper discrimination between the man who gets his diploma and presents it to the Board of Dental Examiners and the man who has practiced dentistry and served a pupilage of say three years to fit himself. There should be some discrimination between the man who has gone through school in a year or two years (I believe it is three years now) as against a man who is rushed through without practical experience, even though he has had his three years in college. Dr. Platt emphasized the fact that some of the most conspicuous quacks today in our profession are men who graduated from colleges. It is a shame to them—a shame to them that they so dishonor their Alma Mater. The paper is an admirable putting of the whole question. I do sincerely hope we can in some way or other amend or reconstruct our present dental law so as to bring it as nearly as possible into a shape that will make it fit the needs of the whole profession.

Dr. L. Van Orden.—Mr. President, I must say that it is a little early for me to attempt any discussion of this subject. I have not considered it I think with sufficient carefulness, although it is a subject to which no one can feel indifferent. We have at the present time a law that has not been changed in ten years. We have worked under the present law for ten years. It seems to me the question that should concern the Board of Examiners and the ambitious, reputable practitioner would be pretty nearly this: That it is not a question of the prosecution of quacks, a question whether the Board is following up this man or that man, but it is that the real interest to the public and the profession hinges on one point, and that would be the examination, both theoretical and practical, that is given the candidates who come before them. I think that that is the main point that would concern me if I were a member of the Board of Dental Examiners. I would not give three minutes time to reply to any aspersions upon me as a member of the Board, individually or collectively. I should simply place my record of work done as a dental examiner before them, rely on the record of proceedings, the papers that were passed on and the percentages made, and let the pro-

fession and the public draw their conclusions from them. With that I should think my duty had been accomplished.

Dr. W. A. Moore.—Mr. President, there is one point in Dr. Platt's paper I wish to speak of. He said some men got through, and the Board of Examiners and God Almighty only knew how they got through. Now, I want to say one thing, so far as I am concerned: I have been a member of the Board two years or more. If any man has been passed by the Board that is not qualified I don't know it. There are members on the Board that have been there for years. They may tell you a little more about it. I think that that sentence is a slur on the Board of Examiners direct. I may be mistaken, but I took it that way from what I have heard outside. The examination papers, the answers and everything pertaining to the examination of applicants are on record. Any dentist in this State can come to my office and see them. They are there, every question and every answer, and so far as the practical work is concerned, it was good or the applicants would not have passed. Good, according to our judgment. We may not be able to judge. We are put there for that purpose. We do—so far as I am concerned, and, I think, so far as the whole Board is concerned—the best we can.

Dr. Platt.—Mr. President, I would like to state that I did not mean to make any reflection on the present Board or any Board in particular. The only way we judge a man or a man's ability is by his work. I have seen work done by men who have passed the Board; I do not know what Board; but I know licentiates who are doing work that is simply atrocious; absolutely malpractice. Such men keep on day after day in the city of San Francisco. They probably passed the examinations; probably did very well. I do not blame the Board for passing them. The Board no doubt did its duty. But the point I wanted to make most strongly in my paper is the fact that those men should have had experience before they went before the Board. In my own class in the Philadelphia College men passed who were not fit to practice dentistry. They might have made good farmers or blacksmiths. They passed the examination; they pulled through. Dr. Flagg gave the only explanation

I have heard. He said the devil took care of his own. The Board of Examiners took care of them. That is the fact. We want something that will correct that. Keep ignorant persons out, men who are debasing us, bringing disrepute upon all of us, lowering the standard of the profession. I do not mean to say that any member of the Board has not done his duty. No doubt they have done the best they knew how. I do not want to slur anyone or hurt anyone's feeling.

The President.—Gentlemen, I wish to state that there seems to be a mistaken idea that the Board of Examiners is on trial before this Association. Now, last night in my paper I mentioned the Board of Examiners, but not this Board or any other Board. The subject of this paper is: why we need a better dental law. It is dental legislation that is being discussed; not the Board of Examiners. I wish you would talk upon the subject before the house. I am going to rule very strictly in that regard, because our time is limited, and we have a great deal to do. I don't want the Board of Examiners to go away thinking there is any feeling against them whatever. It is a mistaken idea.

Dr. F. H. Metcalf.—Mr. President, I have a word to say. I think Dr. Platt's remarks are all right; I don't think he intended to reflect upon any Board so far as itself is concerned. We all know that unfit men will creep through the Board as they get through college, as Dr. Platt says. I knew in my own class a great many who ought to have been sawing wood rather than entering the dental profession. What we need in the dental profession is gentlemen. We want gentlemen first; men of character first. As far as examinations are concerned the Board is pretty severe. As was said last night, out of forty-six applicants but eighteen passed the Board at its last session. I would like any gentleman here who cares to try it to take the examination and see what it is like. They have given questions I know I could not answer myself until I studied them up. I am free to confess it. Gentlemen, I feel that every man on the Board is doing his duty. What the Board needs is more power. It is in the office that we get practical ideas of the profession. A man in college may be smart enough. He

may pull through. Although full of theoretical knowledge you may see him chase a piece of gold all around trying to get it lodged in a cavity after he had been three years in college. I have seen men that have been in an office six months that could put in a good substantial gold filling. I believe it is for the interest of the student himself. It is better that he should take a course in an office before he goes into college. In my own experience I served a year in an office. I can remember when I chased a piece of gold around trying to get it lodged somewhere. We all know there is a difference in men. One man will learn more in a year's time and application than another man learns in a lifetime. There is no question about it. As to the length of time that is spent in a college or in an office, that is not so much of a factor as that a man should prove himself. That is what we want—to get good men. I will state frankly and honestly that I believe that any man who wants to get a college education can get it; it lies within the man. Dr. Platt knows nothing of the trials and tribulations some of us have had. Any man can get along that wants to. At this stage of our profession a man should always possess a diploma. As one writer says, a man has two educations: the one he gets in school, and the other he gets himself; and the last is by far the most important.

Dr. F. F. Tebbetts.—Mr. President, in discussing the paper of Dr. Platt we are likely to digress from the subject. I will say that we have a State law which I think is the equal of any State law in the United States, provided the law is enforced. Take the laws of the several States of the Union and you will find that the laws of California regulating the practice of dentistry compare favorably with any law in the United States. Of course, there is not any law but to which amendments can be made—improvements made as the world advances. Now, to be fair, to be American, which we all are, we must concede that everybody in this world is entitled to a livelihood who has eyes to see and hands to work with. In the dental profession I consider that from a legal standpoint each dentist in himself is his own lawyer, his own legislator. He makes his own laws. We will take, for example, the dentists in the State of Cali-

fornia who are practicing at the present time. In their manner of conducting their business they are the framers of their own laws in their own offices. For instance, a few years ago Dr. S. E. Knowles got the idea in his head—and it was a good idea—that a dentist should be paid for his time by the hour. I recollect him telling me that he advanced the idea to his father, a gentleman whom we all knew, that he was to introduce a new era in dentistry, and that idea was it. His father said, “You will have no practice at all; you will have no practice if you go on that theory and undertake to make a law of that kind for yourself.” But the Doctor made that his law, and he has practiced that way, and has built up a fine professional business. I give that as an illustration of the laws that are made and the laws that are in force; the laws of the dentist in practice, and the laws of the State of California. Our State law is a good law; the law as has been given to us by our predecessors and as enacted by our Legislature. I believe that every member of the profession must make the law to govern his own practice—his own business. While in the vicinity of San Francisco you will find men charging \$15 or \$20 an hour for their operations, so you will find others doing the same work for fifty cents an hour. I believe that the gentleman in his paper referred to the fact that parties had passed the State Board who had been doing atrocious work. When I first became a member of the State Board of Dental Examiners the examination was nothing but written examinations. In my first year on the Board I suggested to Dr. Knowles and others that there ought to be a clinical examination. I said a man might have theoretical knowledge without any practical ability and still pass the examination by this Board. Since that time there have been clinical examinations. Since then, if I am not mistaken, we have required a man to state the full amount of time that he has been practicing dentistry. I have looked over the papers and I have not seen a paper that was not signed for in the neighborhood of three years. I don't believe there has been a man who has come before the Board of Dental Examiners who has ever stated to the Board over his signature that he had only been a year or

even six months in practice. They are nearly all three years or more. I have examined those papers, gentlemen, and I want to put the Board in a correct light before this Association. If a man has sworn to a lie, that is another thing. It is almost impossible, should he lie, for us to discover that he has been practicing only eight months or a year. We have not time to go out and investigate as to whether that man has actually been practicing the length of time that he swears to. You are invited to inspect our papers; they are open for inspection. In my humble opinion they are fair papers, and the answers are as fairly given as could be expected under the circumstances.

There is another point that I want to refer to, that is in regard to the appointment of the members of the State Board of Dental Examiners. We have a society. I am a member of that society, and have been for years. We have a society of 150 members, all reputable dentists of this State, principally from San Francisco. The law states that the Governor of the State shall appoint from the profession at large. We have several societies; there is a society in the southern part of the State; there are societies in different counties in the State; how many I do not know. The applications for appointment as members of the Board of Examiners are oftentimes endorsed by the several societies. When you stop for a moment to think of the names of the members of the State Board of Dental Examiners since 1885 you will recall the fact that they are the most prominent members of the profession in the State of California. Dr. Dennis was once president of the State Dental Association, and, if I am not mistaken, he was the first president of the State Board of Dental Examiners appointed in this State; Dr. Morffew, another reputable dentist of this State, well-known and popular; Dr. Griswold, an old-time representative dentist of San Francisco; Dr. Pierson of Sacramento; Dr. Southworth of Sacramento; Dr. S. E. Knowles of San Francisco, whom everybody knows, and who is in this hall today; Dr. Younger of San Francisco, and others too numerous to mention; Dr. Asay of San Jose, Dr. Drucker of San Francisco, whom everybody knows; Dr. Backman, a popular first-class dentist, Dr. Metcalf of Sacramento, Dr.

Bliss of Santa Cruz, Dr. Moore of Benecia. All of these gentlemen are reputable dentists, men as well qualified as any man who sits in a dental college to pass upon papers or examine any man you may speak of. Gentlemen, the laws of this State give the Governor of the State of California the power to appoint the dental examiners. You advance the idea that the State Dental Association of this State should have the power to appoint those officers. You will find opposition, and strong opposition; there is no doubt about it. That is a matter that rests with the Governor of the State. He will never affix his signature to any law that is passed that will take away his power. Now, gentlemen, I am taking up too much time in this matter, but I wished to call your attention to the facts. Let us put our shoulder to the wheel and try to improve—if there is any way to do it—the State dental law. The State Board of Dental Examiners have taken up this matter themselves. We have some members at the present time looking over the laws of the several States of the Union, and who are preparing to make a report of amendments deemed desirable. If the State Dental Association wishes to improve the law of the State of California it will not find any more hearty co-operators than the State Board of Dental Examiners.

Dr. Platt.—I want to make one or two points in closing. In looking over the statements published in the *Items of Interest* of March, 1898, there is a list of the States and the way in which graduates and non-graduates are treated. I find there are thirteen States representing seventeen colleges that examine graduates only, a non-graduate is not granted a license. In ten States representing four colleges, both graduates and non-graduates are examined. There are thirty-three States representing twenty-one colleges where graduates are examined. We want to take that into consideration. I was told by a gentleman if that kind of law was put in action it would close all the dental colleges in the United States. It has not closed twenty-one colleges in thirty-three States; it has not closed a college anywhere. One thing we want to do, we want to impress upon students everywhere that the higher education a man has the better fitted he is to take his place in advance in the dental pro-

fession or any profession. Theory is all right, and practice is all right; theory without practice is not worth a cent. Practice without theory never gets ahead very fast. I don't care how excellent a man may be able to fill a tooth or to perform any manual operation in dentistry, he cannot do the very best for himself or his fellow man unless he has a good education back of that. It is impossible. One of the best blacksmiths I ever knew was a college-bred man. He told me himself he thought he could shoe a horse as well as he did because he had a good education. That may seem strange to some of you, but I believe it is right. The higher education a man has in theory as well as practice the better off he is and the better is he able to do good service for his fellows. Now I want to call attention to the fact that there will be a meeting. I don't know who ought to call that meeting. The notice was published in last month's GAZETTE calling on the different organizations of the State to appoint members to form a committee who might be devising ways and means to bring up the matter of considering amendments to the State law. I would like to say that I would like to have that committee meet. I think it devolves upon me to ask that the committee meet this noon or possibly early this afternoon, to see what can be done toward bringing this matter properly before the State Association. The work can be done in committee better than it can in the whole meeting. We can, perhaps, frame a set of resolutions that will bring this matter up for consideration, I think very quickly. If we get through in time with the morning program to meet this noon, I think we had better do so, if not, meet early this afternoon to see what can be done.

Dr. Tebbetts.—Excuse me a moment. You have referred to a committee on the dental law. I would like to call attention to the fact that only about a year ago a committee was formed which acted hastily. I don't know of a poorer law ever being presented by way of amendment to legislation than that so hastily passed through the Stomatological Club of San Francisco. The members of the State Board of Dental Examiners read the amendment and called attention to its deficiency. The committee had acted hast-

ily, and the result was a great deal of opposition, in fact enough opposition nearly to defeat that bill right on its own merits. Now, I wish to call attention to the fact that one of the dentists in Sacramento was very anxious we should amend the law, particularly that part in regard to the Governor's appointment, more so because he was one of the disappointed applicants, you understand. That was the selfish motive on his part. I called attention at once to the fact that this law would land upon this State all the quacks in the United States. It gave every man an opportunity to come here and practice by registering within six months. The State Board of Dental Examiners has a committee at work slowly and cautiously. We are going to present amendments. If your committee should make an amendment, in twenty-four hours I should fear the result.

Dr. Platt.—This committee is not to propose a new law nor formulate any law, simply to bring the matter before the convention in a business-like way.

A FEW HINTS ON THE MANAGEMENT OF PROXIMAL CAVITIES IN MOLARS AND BICUSPIDS.

BY S. E. KNOWLES, M.D., D.D.S., SAN FRANCISCO, CAL.

[Read before the California State Dental Association, June 22, 1898.]

THE most difficult cavities, considered as a class, are unquestionably compound proximal cavities in teeth posterior to the cuspids. Arising, as they almost invariably do, upon the proximal surfaces, great destruction is often wrought before their presence is ever suspected. In many cases there is a total absence of any warning in the way of pain or even discomfort. Frequently in cases in which patients exercise ordinary care and personal attention the disease has progressed to such an extent as to fairly jeopardize the pulp. Should the proximal contact of the teeth be at a point, or in a line, early discovery of the trouble is likely to follow; but when, as is often the case, the contact is one of area, in the absence of suspicious sensations the destruction of tissue may be great before the trouble is correctly diagnosed. Frequently the stranding or cutting

of silk floss (unwaxed being the more searching) gives the first hint of the real condition. The use of this agent, together with suitable means for the separation of the teeth at the suspected point, is usually sufficient for complete identification of the nature of the disease. Should the caries have progressed to any great extent, the lingual, buccal or occlusal surfaces may have become involved, and the diagnosis is rendered self-evident. Often when the decay is well advanced a change of color may be noticed in the enamel at the mesio- or disto-occlusal edges. This change of color may appear in the form of a slight bluish tint in the case of slow decay, or may show opaline color in case the decay is rapid, and in either case is of fairly reliable diagnostic value.

The diagnosis having been determined, free access is the next point to be considered. If the teeth are in close relation, the top wall must be removed with suitable instruments, drills, enamel chisels and corundum points of appropriate forms, the details of which are familiar to you all. It is an almost invariable custom with me not to attempt to fill both proximal cavities upon the same day, as I consider the preservation of the natural outline of each tooth of prime importance, in order to secure the natural form of interdental spaces. It is therefore considered necessary to use temporarily the space in the distal cavity to accommodate the convex contour of the filling in the mesial cavity, neither filling, however, being inserted until the excavation of the cervical and lateral walls of both cavities is fully completed. After the completion of the packing of the gold the proximal surface is dressed into form, following the lines indicated by the outline of the tooth; and the occlusal surface stoned until correct articulation is permitted, this should constitute the operation for the first day. Cotton and shellac varnish may now be firmly forced into the distal cavity in the anterior tooth, and in twenty-four or forty-eight hours sufficient space may usually be gained to enable the operator to fully contour the distal filling in like manner, with surplus room sufficient to finish

both fillings on their proximal faces. The final adjustment of the occlusal surfaces of the fillings may best be left until both teeth have resumed their normal position. In all cavities of this class, particularly in the mouths of young patients, or in any case in which the pulp is menaced, it is much better to precede the permanent filling by a temporary filling of os artificial, or a combination of this with gutta-percha at the cervical portion of the cavity, permitting it to rest in this condition for a period of six or more months, or until the supersensitiveness, indicative of acute inflammation, shall have subsided.

In the matrix properly constructed and applied is the solution of one of the main difficulties that have beset the management of this class of cavities. The set devised by Dr. Louis Jack, of Philadelphia, has been used with excellent results for many years, and in many cases appears to completely meet requirements; their great rigidity, however, and corresponding thickness render them objectionable in many cases. Inasmuch as the cervical wall may be readily reached and the gold packed directly toward it with points of proper shape, the most frequent seat of recurrence of decay is not primarily at this point, but at the lateral points of union of the cavity and matrix. To overcome this difficulty a modification of the band matrix has been adopted and used in connection with a new form of curved-faced beveled plugger-point, both of which will be exhibited. The band is of German silver, rolled very thin (34 gauge), to the extremities of which are soldered small wire rings of the same material. They are made of various forms and lengths. On one edge in the center or at other points of the band a lip is formed with convex curved extension to follow the festoon of the gum. In applying this matrix waxed silk floss is passed twice through the rings and around the tooth, and tied at any convenient point. If properly done the fixture is perfectly secure, the extension lip is arranged so as to occupy the central space between the teeth.

Should there be a tooth near enough to be available for

this purpose, a properly formed wedge of orange wood is to be applied in such a manner as to bring the extension lip closely and firmly against the cervical border. Rigid approximation of the band and cavity edge at other points is not desirable, the extreme thinness permitting a slight straining of the band at these lateral points, and thus permitting a slight excess of gold to pass beyond the contour line of the tooth. After the removal of the band these edges are often accessible for use of such filling points as the No. 8 Varney, or the blade burnishers, and may be spread more fully over the edges of the cavity before the dam is removed.

In parenthesis it may be stated that in the use of plastics these bands may be permitted to remain for twenty-four or more hours, protecting friable edges (as of amalgam), until the material is thoroughly set, stoning the band if occasion requires, as the string method of attachment permits the apparatus to be worn with comparative comfort.

The peculiarities of the filling points are the curve and bevel of the faces. The various bends of the shanks are largely a matter of personal requirements; the greater variation of the bends from the line of axis of the handles, the less the removal of tooth tissue is required. With the abrupt bends a pressure by the hand in the direction of the nearest wall at the instant the mallet-blow is delivered will enable one to pack against the wall in a satisfactory manner, the working direction of the combined forces being a resultant of the pressure and the blow, and is in a line between the two directions. With the greater bends the gold may be packed against anterior walls in cavities in molars, even as far back as the inferior wisdom teeth. The advantage of a curved face on the packing points is two-fold: first, to insure a level face to the gold; second, to avoid cutting or chopping the gold. That these results are secured by this form of face is so self-evident as to require no further elaboration. The object of the bevel of the faces of the points is also two-fold: first, to insure complete

adaptation at the line of union of the cavity and matrix, the toe feathering almost to a knife edge, thus insuring the packing of the gold closely into a very acute-angled space; second, the heel of the face of the point will rest well within the cavity while the toe is packing at the edge, and this, if the matrix is properly adjusted, will prevent the point from passing through between the matrix and the tooth. These filling points have been in use, both in the hands of a few professional friends and the writer long enough to demonstrate their practical utility in connection with the various forms of matrix. They have also proved of great value in proximal cavities in the oral teeth, if the lateral pressure is applied at the instant the blow is delivered, even if the cavities are so situated as to render the use of the matrix inexpedient.

The large proportion of our failures are found in proximal cavities as compared with those entirely confined to the occlusal surfaces, and, considering the many methods that have been suggested to reduce the number of our failures, many of which in my opinion are of doubtful value, as, for instance, the introduction of more than one metal in the same cavity, it would appear as if any practical improvement in the application of our sheet-anchor, gold, would be doubly welcome.

DISCUSSION.

Dr. F. L. Platt.—Dr. Knowles did very wisely in deviating from the beaten path in his report for the Committee on Operative Dentistry, in bringing up this matter of adaptable matrices and the various plugger points mentioned in the paper. I have seen Dr. Knowles operate with those points. After seeing him operate once I tried to follow his example with the next bit of work I had on hand. I must say that I would hate very much to go back to the time when I used the ordinary points.

One thing mentioned is deserving of special notice—that is, having the hand-pressure and the mallet-force act in unison. It is very easy to get the direct blow. You can hardly miss it. With the curved point, unless it is held

firmly in the hand, and the hand-pressure exerted in unison with the mallet-force, the whole purpose is defeated. Another point he made, that the matrix should yield a little, is worthy of consideration. An absolutely rigid matrix, if such a thing could be found, would not subserve the purpose so well as one that would allow the packing of the gold thoroughly down between the cervical or marginal edge of the cavity and the matrix. Now, I would like to say that with these points of the peculiar curved shape it is possible to press the gold down stronger between the matrices and the wall than with any other device I have ever seen.

It is not, as Dr. Knowles has said, absolutely essential that the matrix be used with these points in some cavities. They are very valuable. But there must be taken into consideration the point that he dwelt upon, that the hand-pressure and the mallet-force must act together.

Dr. A. F. Merriman Jr.—About a year ago I secured a set of pluggers similar to the one that Dr. Knowles uses, and the work that I found so difficult for many years back has become comparatively easy by the use of those pluggers. I may say, as regarding the direction of the pressure, you must exert the force in the direction in which you wish the gold to go—one way or the other. The oval point has been a great improvement over the square-faced point.

DENTAL PROSTHESIS.

BY J. A. W. LUNDBORG, F.S.C., SAN FRANCISCO, CAL.

[Read before the California State Dental Association, June 22, 1896.]

TO submit a complete report on dental prosthesis would be equal to presenting an announcement or communication on the science and art of dentistry, or, if you please, prosthetic stomatology. Prosthesis, according to its definition in Dunglison's Medical Dictionary, is defined as "that part of surgery whose object is to add to the human body some artificial part in place of one that may be wanting"; consequently, as prosthesis is one of the most prominent adjuncts upon which dentistry as a profession depends it should necessarily claim our most earnest attention.

Experienced practitioners fully realize the fact that the intricate and delicate prosthetic operations, which during seven-eighths of his daily time he is compelled to perform, requires a thorough knowledge of the art of construction; and he should possess inventive talent, be skilled in handling tools and instruments, and be familiar with dental laboratory paraphernalia, all of which is absolutely required, whether it is to restore a fractured or carious tooth to its natural condition and contour, or to provide a proper denture of any description; in fact, any prosthetic device.

There are but few vocations which afford the opportunity to display skill and mechanical ingenuity intermingled with art upon scientific principles as that presented by the dental prosthetic department.

This, gentlemen, is, as you may perceive, only a brief résumé of what the term "dental prosthesis" implies. Its practical import we will now briefly consider and offer some suggestions that may be of interest.

There are members in the profession who do not favor the word "mechanics" being attached to their vocation, and emphatically declare that they do no mechanical dentistry. We may presume to know what they mean, but it puzzles the patient, who notices that the operator makes use of so many implements to accomplish a dental operation. The dividing line is still to be defined which shall separate the so-called operative and mechanical departments. The two being merged into one is called dental prosthesis. The word "mechanics" therefore must be endured. But it is a consolation to know that in these departments there are no conjectures; everything is tangible and openly demonstrable. The operator can exhibit his skill in many ways, if his ability so admits, though the recompense in many instances predominates in actual manual labor. It is no wonder, therefore, that there are so few multi-millionaires amongst us, the reason maybe being that the confinement of constant application and indoor work makes us forget the great talisman, money. Although we are pro-

gressing and making improvements in all the departments pertaining to prosthetics, with but few exceptions we have nothing startling to report at this time.

In the haste to benefit the clientele we find that the insertion of crown- and bridge-work, although intended for so much good, is, and has been abused in so many instances that we feel the necessity of calling your attention to this class of operations, and urge that it be discontinued, unless inserted upon true and hygienic principles. It is a known fact that good sound teeth, six to eight in number, and with but small cavities in them, and some teeth without cavities at all have been sacrificed, cut down and crowned. Aside from comparatively the loss of the tooth or teeth, the experience and painful sensation in having a sound tooth cut down to receive a band and crown adjusted or fitted sympathetically speaks for itself.

We also call your attention to the abuse practiced in many instances of the various sized permanent bridges—to so-called stanchion teeth: teeth that really are in condition to be treated for pyorrhea and kindred troubles. I have found that the best and most practical method in such cases is the telescope attachment, and, if possible, to use the bar-bridge, which means lateral bridges for lower sets particularly, though it can be used even for the upper lateral when the denture is not in sight, and its use is only for mastication.

The gold for the bar should be 20 or 22 karats fine, and 22 gauge, and be wide enough, in keeping with the width of the coronal surfaces on the stanchion teeth, and then the bar swaged, representing sharp cusps of molars and bicuspids.

If dummy teeth are used, they should not touch the ridge, but leave room for exit, for the tongue or brush to keep the space clean.

Some objections are raised to the open space between the ridge and the bar, but cleanliness and the comfort experienced in mastication, etc., aside from having the opportunity of removing the bridge at will, is so much appreci-

ated that objections are over-balanced. We have no doubt that the majority present may practice this style of work just mentioned as to telescope dentures, still reminders are sometimes good, and in order.

I have the pleasure to report the advancement made in porcelain inlays and inlays made from natural teeth, and also of gold-plate inlays. The last-named operation is a boon to both patient and operator; it has proved a great relief and obviates long and tedious sittings in one position. The operation is absolutely painless, not requiring the incessant malleting, the intermediate hand-pressure, or any process by which gold is consolidated. It is an exquisite piece of art, of which we can well be proud when the work is properly manipulated.

If a person is disturbed as to the mechanism required to accomplish such an operation he should not attempt it. The finish, if all the details are accurately attended to, eclipses any filling of the size for which these gold-plate inlays are best adapted.

To perform this operation it is essential to have conveniences at hand for taking the impression and making the metallic dies, if necessary; and when soldering the platina spuds a workbench close to the chair is really necessary, containing even all the laboratory paraphernalia, and be as neat as an operating bracket should be. The making of inlays will exhibit and illustrate an operator's skill in delicate prosthetics, because it is imperative that the essential part of the operation should be performed by himself. The inlays are generally up to this time only adopted for large and compound cavities, but when the operator becomes familiar with the intricacies in manipulating, ordinary sized cavities will be filled in this manner. The *modus operandi* in preparing the tooth and cavity for an inlay demand the same attention as for a gold filling, only that retaining pits and undercuts are unnecessary.

DISCUSSION.

Dr. C. L. Goddard.—I am very glad that Dr. Lundborg advocates the retention of the old-fashioned name of “mechanical dentistry.” I always liked that title best for that department of our practice, perhaps because I am a little old-fashioned myself; perhaps from the exact meaning of the word “prosthetic.” It is derived from two Greek words, which mean to replace—to replace a lost part by something artificial. Replacing a natural tooth by an artificial tooth is prosthetic dentistry. Replacing a lost portion of a tooth by something artificial looks to me to be in accordance with the definition of the word. So I cannot see where an exact line can be drawn between prosthetic dentistry; or if we use the term “prosthetic dentistry,” as its meaning implies, I do not see what we can say does not come under the term, except the treatment of the teeth. Still, words come into use many times without much regard to their original meaning. I think this was first applied in the human system to the replacing of a natural limb by an artificial one, or a natural eye by an artificial eye as being a practice of prosthesis. Still, the term has been used by dentists so much in the last few years that I have no doubt it will be retained. Whereas, a few years ago mechanical dentistry seemed to be relegated to the background, it is coming forward and claiming more and more of our attention, especially since the introduction of the many kinds of crown- and bridge-work. In crown- and bridge-work we should all be conservative; not take an extreme stand; not attempt to put too much work upon too small a foundation. Nature has provided a foundation of one, or two, or three roots to support the crown, averaging in extent of masticating surface not over a half square inch I think in any instance. Attempts are made in bridge-work many times to make two or three or four roots do altogether too much work. Still, bridge-work has its proper place as one of the great advantages in mechanical, or, if you please, prosthetic practice.

Dr. C. B. Root.—I have had the pleasure of witnessing some of Dr. Lundborg’s operations. I have tried his method of gold-plate inlay on several occasions, and I find that it

has proved remarkably successful. It is rather difficult to get an intelligent idea of the operation unless it is illustrated. In my opinion it has an important place in dentistry. When we have a cavity so large that is almost impossible to fill we can either cut the tooth off and crown with porcelain or use the open-faced crown. This method of gold-plate inlay of Dr. Lundborg seems to give good practical and satisfactory results.

Dr. W. P. English.—The main thing in all these operations in bridge-work is to have a complete fit. We see a great deal of bridge-work that is being done so poorly, the fit is so poor, that it makes us wonder sometimes why the party that put it on would even undertake the operation. The cleanliness of the bridge is another point which has been brought out which we should not lose sight of, by not allowing the bridge to cut the gum or mucous membrane. If the bridge is allowed to touch, of course we have inflammation there which gradually becomes larger and will eventually cause trouble.

Dr. A. F. Merriman Jr.—I am not going to allow the opportunity to pass without saying a word of praise for the excellent paper of Dr. Lundborg. I think his idea is very good, and I am very glad to have it brought out. As regards the gold-plate inlay, it is a beautiful operation as performed by the Doctor. I heartily recommend it to the profession. I am sure that the results will be all that can be desired.

EDUCATION AND ITS RELATION TO DENTAL ETHICS.

BY F. H. METCALF, D.D.S., SACRAMENTO, CAL.

[Read before the California State Dental Association, June 22, 1896.]

MY paper you may think a little in the nature of a sermon. On the other hand, to illustrate, a traveler inquiring of a countryman the way to town was told to keep on to the next cross-road, where he would see a preacher pointing in the right direction. The traveler went his way, but later returned saying he saw no preacher there. His informant then went with him. Pointing to the guideboard he said: "There is the preacher." "And pray why do you

call that a preacher?" the traveler asked. "Because it points the way and never goes itself," said the countryman.

Gentlemen, I am afraid I am the preacher. I have just come in from my garden, where I have been spending a pleasant hour in weeding and caring for the plants and flowers. As I looked at them I thought how near we are to nature in our growth and development. I can almost imagine that plants and trees have reasoning faculties, for they respond so quickly to cultivation and kind treatment; and how quick they are to show their needs, and how grateful they seem when you have enriched the soil and given them water and removed the weeds that are choking them. You can almost hear them thank you. Henry Ward Beecher said: "Flowers are the most beautiful things that God ever made to which He did not give a soul." It seems to me they have one. They show gratitude at least, which is more than human beings often do for a kindness rendered. How much children are like plants, which require attention from the moment they peep through mother earth. As the twig is bent so will the tree incline. The child's training should commence in the cradle. I might say it should antedate birth; for we all know how wonderful are the laws of heredity; how the character of a child is affected by the surroundings of the mother during pregnancy. Train a child in the way he should go, and when he is old he will not turn therefrom. Like the plant in its infancy, they must be trained and supported until they become strong in body and mind, and capable of taking care of themselves. Everyone is as God made him, and oftentimes a great deal worse. How quick we can tell by the actions of a child in our chair what kind of a training it has received. A gentleman traveling on the cars was much annoyed by the conduct of a child in an adjoining seat. The mother seemed to have no control over it. Finally she said to the gentleman: "Do you believe in using the rod?" He replied: "Yes, except at times when I think a gun is better." Children must be taught to mind, and also a wholesome respect for the truth.

Different natures require different treatment. While kindness will control many, there are others, like our naval hero Dewey, who require discipline, and most all boys need it. The kindness of my dear old mother was often of no avail. But a respect for truth and justice was taught me by my father through the medium of a broad palm attached in the usual manner to a six-foot-one frame, and applied where it would do the most good. "Willie," said his father, "it hurts me just as bad to spank you as it does you to be spanked." "Yes, pap, but it don't hurt you in the same place." Mean boys, as a rule, make mean men. When I look back to my boyhood I think of the swimming hole where we used to take our daily dip (or rather several dips daily) as a good place to judge character. I can remember several mean boys who used to throw mud on or tie knots in the shirts of the smaller ones who wanted to dress. Those boys turned out badly without exception; and thus does character show itself early in life. It is hard to believe that a boy who has had the prayers of a good mother at his bedside can become a bad and vicious man. That rich men's sons often turn out badly is not to be wondered at. As the father is too engrossed in business, and the wife in society affairs, to give them the attention they need the children are left in the care of servants, who often delight in corrupting youth.

In the matter of dental education let me speak of character. We will suppose a student is ready to enter one of our dental colleges. He may be witty, bright and well-educated for one of his years, but if he lacks character he lacks the keystone of success, and will never be an honor to his profession or become a good citizen. Children, in fact all of us, are influenced largely by example. What chance has a boy in the world, born of dissolute and vicious parents, when not even surrounded by a good example? Example is better than precept. Is there anything more dreadful than to hear a parent swear before his children? It is not an uncommon occurrence with men of position in the world, and yet they correct their sons for what they

themselves have taught them. You might as well read a chapter on agriculture to your potato patch and expect it to profit by it. Growth of character depends largely on the mother. Thank God for good mothers!

When it comes a question of getting on in the world, character and steadiness will do more than cleverness. Sir John Lubbock says: "The worth of life is to be measured by its moral value." A man of character has a conscience. Keble says: "Once you make up your mind never to stand hesitating when your conscience tells you what to do, and you have the key to every blessing a sinner can reasonably hope for."

Character is what we want in the students who enter our dental colleges, and who come before our dental board. There are innumerable qualities that go to make up a successful dentist: a cool head, a steady hand, skill, sympathy and perseverance, but, above all, character, which means manly dependence and manly independence. I believe we have as many non-ethical practitioners with D.D.S. attached to their names as we do among the non-graduates. What is the reason for this? The non-ethical uses his degree to deceive the public and often to hide his ignorance. The dentist who has not been able to avail himself of a college course realizes that he labors at some disadvantage, consequently he applies himself to study and often surpasses the man who has had superior advantages. A man has two educations: one he gets at school, the other he gives himself, and the latter is by far the most important; for what we get at college is at best but the beginning of the end. How can the unprincipled be kept from the profession? how can the colleges discriminate when they have to be self-sustaining? The colleges should be endowed. Dental boards must be more rigid, though the examinations now are far from easy. At the last session of the State Board out of forty-six applicants, but eighteen were successful. Not a bad showing when we consider what a small per cent. fail in college.

How little is known of the character or early training of

the boys who matriculate at our colleges? A man's real character may not assert itself until he is engaged in private practice. It is hard to draw the line between the ethical and non-ethical practitioner. Circumstances alter cases. The line is drawn too fine at times by the dentist with a lucrative practice. It is mighty easy to be an ethical practitioner when you have a large practice or a well-filled purse; but how about the other fellow, who has worked his way through college or served a long apprenticeship and has nothing but his hands and a brave heart as capital? That kind of a man is often abused and misunderstood. If he cuts prices or advertises he is ignored by his fellow practitioners. His conscience tells him that he is not an ethical practitioner in the strict sense of the word; but to illustrate: An old darkey plodding along under the weight of a quarter of beef, his clothes being in rags, was accosted in this way: "Say, George Washington Smith, why don't you buy more clothes and less beef?" "Well, sah, when I asks my back for credit it gives it; but when I asks my stomach it calls for the cash." Gentlemen, there are others. I have much sympathy for the young man who is just starting in practice, and who has had to work his way. He wants to be honest and pay his bills, and will be all right if given half a chance. It is true, he might work the church, but we are presuming he has a conscience. A little of my own experience may not be uninteresting to the younger men. In 1885, with my diploma tied up in blue ribbon, and a few instruments which I had bought on credit, I started for Santa Fé, New Mexico. In due time I arrived there with \$25 in my pocket, an entire stranger, many misgivings and a good appetite, which the landlord of the hotel was willing to satisfy at \$4 a day. So nothing had to be done and at once. I started an office in my room at the hotel. The Irishman's house had four rooms—the eating room, the sleeping room, the kitchen and pig pen; in my case they were all in one room, with a rocker for an operating chair. I hung out a modest tin sign, and thereby hangs a tale. Having been brought up

in a church, my first acquaintances were church people. One of the deacons being a sign painter, of course I went to him, thinking he would be easy on me (that shows how green I was). Well, he charged me \$10, and he died before I ever had a chance to get even. Since then I have made up my mind that religion with many individuals is nothing but dyspepsia. The \$25 had nearly all disappeared. I had sent my card to all the best people; and, gentlemen, they were not engraved I can assure you. To make a long story short, fortune finally smiled upon me. My experience in starting, coupled with the fact that I worked out by the month to get money to go to the dental college, and lived on \$4 a week for two years in Boston (by the way, I have never been fond of beans since), makes me very sympathetic for the young practitioners; and I can forgive them a good deal if they do the best they can.

Nothing queers a man so quickly as a reputation for not paying his bills. The trouble with many young men starting is, they want to spend their money before they earn it. They want to be a "good fellow" and seem to think that the end justifies any means. I tell you, gentlemen, charity begins at home. Be just before you are generous; you can't keep your friends and patients if you borrow from them.

What we want in the profession is men of character. Is it necessary to advertise to get a practice? I say no; take care of your office, and your office will take care of you. Many a man has failed because he could not sit in his office. The time to catch bears is when they are around, and when they are scarce do not let any get away by not being on hand. It's half the battle in life to start right. Many a young practitioner starts off wrong, owing oftentimes to a wrong idea of what constitutes an ethical practitioner. When he discovers his mistake he feels ashamed to admit his wrong and is snubbed by his fellow practitioners; then perhaps all he needs is to be forgiven and a little encouragement to do right. "While the light holds out to burn, the vilest sinner may return." The best way to establish

one's self is to be honest. Don't pretend to be anything you are not. Emerson says, "If a man can preach a better sermon, write a better book or make a better mousetrap than his neighbor, though he builds his house in the woods, the world will make a beaten path to his door." That is putting it pretty strong. Other things must be equal.

To stop unprofessional conduct we must make gentlemen of our students. What is it to be a gentleman? Thackeray says, "It is to be honest, gentle, true and wise," and possessing these qualities to exercise them in the most graceful outward manner. The education we give ourselves requires little capital. Sir W. Jones said, "With the fortune of a peasant I gave myself the education of a prince." For the price of a few cigars one can buy reading matter for a month. Don't think you must have a library to start with; buy one book at a time and read it before you get another. Reading is a pleasure to which wealth gives scarcely any advantage; love for reading and studying should last through life. Lamb used to say, "There was more reason for saying grace over a new book than before dinner." Macaulay had wealth and power, and yet he said he owed the happiest hours of his life to books. Books will teach you more in one year than experience in a lifetime. Read an hour every day. Seneca says, "We complain of the shortness of time, and that our days are few, and act as though there would be no end to them." It is astonishing what can be none by an economy of time. The great element of success and happiness in life is capacity for honest, solid work. Genius is little more than industry. Self-denial and self-reliance will teach a man to drink out of his own well. If you work steady and attend to business you cannot escape the reward; it may be uphill at first, but you are born to victory. Bear in mind that idleness is not rest. "Perseverance" says Adams, in Plain Thinking, "is the statesman's brain, the warrior's sword, the inventor's secret and the scholar's open sesame." Don't expect too much, and don't expect it too quickly. The darkest shadows of life are those that a man makes when he

stands in his own light, and ignorance is nearly always the cause. Education is the harmonious development of all our faculties. It is not always those who distinguish themselves at school that make the greatest successes in life. Napoleon, Sir Walter Scott, Burns, Sir Isaac Newton and many others were dull boys at school. On the other hand, many bright boys have failed in life for want of industry and character. "Take away a man's education," says Dr. Arnold, "and you make him a brute. You leave him with the ignorance of a child and the vices of the man." You must also bear in mind that a man reared in a frugal manner has a far better heritage to make a success in life than one reared in luxuries, and who has extravagant ideas. God helps those who help themselves. We must think for ourselves. Self-reliance should be taught. We often think wherein we might improve some method in practice, but let it pass; later someone else thinks the same and profits by it; then we recognize it is our own rejected thought.

Let us do what concerns us and not what people think. It is not always best to follow the groove of conformity too closely. Force of character is accumulative. This should show itself in charity too our professional brethren. A man may be clever in his work, but how can he be an ethical practitioner if he blackguards his neighbors and sacrifices his professional friends to his ambition. He who wrongs a friend wrongs himself most, and ever bears about a court of justice in his breast; himself the judge, the jury, himself the prisoner at the bar ever-condemned. An unprincipled man in the profession is as bad as an ignorant one. It is said that the word "glory" does not once appear in the dispatches of the Duke of Wellington. Duty was the watchword of his life. The big "I" and the little "you" is too common in the profession. A man may have the manners of a Chesterfield and yet not have a soul the size of a teacup. On the other hand, a man may appear to a disadvantage, who has real worth and the heart of a Wilberforce.

Can a man be an ethical practitioner who patents any

useful appliance? I say yes. Don't draw the line too fine. The dentist who invents some useful appliance is entitled to the thanks of the profession and their financial support. The man who does not profit by an invention because it is not ethical to do so, but allows a company or corporation to profit by his brain and hours of toil, is not doing himself or his family justice.

I have read many articles in our journals from alleged philanthropists who never extracted a tooth that could be saved, so they say. They say we must not consider finances when it comes to saving a tooth. Now I differ. The laborer is worthy of his hire, even though he be a dentist. Outside of extracting a tooth or quieting a toothache, I want remuneration, and I believe we all unconsciously do better work with less fatigue when we are sure of our fees. We should all be willing to pay our pro rata to support the helpless and indigent; but to work for independent individuals is misplaced charity. Charity once, and it is expected always. It is not charity to help people who are in any way capable of helping themselves.

Teach students in our colleges the returns for honesty, frugality, industry and patience; endeavor to take off the rough corners; in short, make them gentlemen; impress upon them the necessity of joining some dental society; remit their dues for a few years; encourage them; send them a patient when you have an oversupply. This we can do without trouble. Do this and you have their gratitude, and will keep many a bright young man from resorting to unprofessional methods to obtain a livelihood. Be charitable in every way to a newcomer. Remember you were once there yourself. Teach them to be frugal and thrifty; to take care of their offices themselves instead of hiring it done. Any way to keep out of debt and retain their self-respect. There are lots of good people in the world who respect a young man who is not afraid of work. Remember that riches are not essential to happiness; live within your means and you can look every man in the face. Remember the story of the Persian king who was very miserable, though exceedingly rich.

He was told that if he would wear the shirt of a happy man, he would find happiness. He hunted his kingdom over. At last he found his man, but, unfortunately for the king, the man had no shirt.

DISCUSSION.

Dr. J. P. Parker.—I would that I could add something to this grand and exhaustive paper by Dr. Metcalf, reinforced by his very apt and witty illustrations, but unfortunately, for me at least, he has treated the subject very fully and has left so little for me to say, unless I repeat. But I concur with the Doctor fully in many respects, especially when he speaks of honesty. A man may be educated, finely educated, and be a rascal; he may be the smarter rascal, the more successful rascal because of his education. A man may be honest, and although not possessing a naturally acute intellect, yet with honest toil he will accomplish greater results than the man who has great natural abilities that lacks integrity. I know some very bright men in the profession that have succeeded; I know many who have not boasted of their brightness that have succeeded equally as well. When I was a student in the office of my preceptor I met a little discouragement. My experience might be compared somewhat in a financial way with Dr. Metcalf's. One thing which helped me more than anything else was a little remark from our much beloved Dr. Atkinson: "Show me honesty and I will show you success." I think I read that paper of Dr. Atkinson's a good many times, and every time it seemed to nourish that idea in me. It has done more to help me and to make me as good a dentist as I could make myself than all the financial aid I ever had. I really believe that if our college students, if the men entering the dental profession, could have that seed, that germ of honesty, planted and nourished in their breast we should have a noble lot of men to boast of; our profession would be honored, would be elevated and raised high in the opinion of the public generally. Outsiders sometimes think we quarrel; that we are jealous; that we don't like to see anybody else succeed. I heard a dentist say the other day that he loved competition; he did not want to be rid of compe-

tition, but he wanted honest men to compete with; and it is honest competition that we are seeking today. If we can instil into the breasts of these young men who are entering the profession that germ of honesty we will certainly have a profession which will be admired by the world and we will feel proud of ourselves.

Dr. R. W. Meek.—Listening to the excellent paper of Dr. Metcalf I thought of what the good book tells us: "Those who have eyes to see let them see; those who have ears to hear let them hear." There are sign-boards along the pathways of life, but a great many of the members of our profession throughout the length and breadth of this broad land have had good counsel poured into their ears, have been told how they could do this and how they could not do that, but they have failed to exercise their sense of hearing. I am not an advocate of advertising; I believe strictly in the code of ethics governing the dental profession of the United States, particularly the code of ethics governing the State Dental Association of California. When a young man, as Dr. Metcalf says, comes into our midst, we want to treat him kindly, give him friendly advice, teach him to be frugal and saving, to live within his means. That is all very well as far as it goes. A young man comes into our midst with an empty pocket, an empty stomach, poorly clad, feet on the ground. We go to him and we say: "Well, we are glad to see you, glad to have you come in our midst; we all love competition here. We are glad you are a good dentist; we know you will be an honor to the profession, but don't you do this, and don't you do that; if you do, off goes your head." It is pretty hard for that young man to get along, you know. He looks at his rent bill, at his expenses which must be met, and he commences to advertise. I don't blame him a bit, not a bit. Maybe he has a wife and baby depending upon him. All he has for capital, his entire stock, is his brain and finger-tips, to earn a livelihood for himself and family. I say we ought to throw the broad mantle of charity over those taking this course in starting out in the profession under such circumstances. We ought to take them into our fold, give them every encouragement to lead better lives and be better men. Have them

come among us and give clinics, and give them business sometimes. Dr. Metcalf speaks of the law of heredity. Now, I cannot say I am a very firm believer in that law. Experience has taught me that it does not always necessarily follow that a child born into this world will take upon itself the vices of its parents. I once said to a lady I inherited smoking. She said to me, "That is all nonsense; does your daughter smoke?" I replied, "No, she don't; thank God for that." "Well, how is it that she didn't inherit smoking, too?" So, I think, a child can be born into this world often of vicious and evil parents and grow up to be a good and useful man or woman, an honor to themselves and an honor to the community in which they live. It does not necessarily follow that a child born of wicked parents will turn out badly. We are all willing to admit that a good mother is one of the grandest and noblest things in this world. Those who are blest with them should certainly be very thankful that they have had their good counsel and their gentle influences. There is no better influence in this world than that of a good woman. For young men starting out in life in our profession there is nothing so ennobling as the company of a beautiful, lovely, educated girl.

The essayist speaks of the fact of there being more D.D.S.'s who advertise their wares around the country than there are of those who have not had the honor of having gained a collegiate education. This is no disgrace to the colleges or to the D.D.S. degree. It is to the man that the degree belongs; the man that has no character. I don't care how much education you put into a man, you can't make a good man out of him unless he is born that way.

I believe it is said in the paper, if I remember right, that men are worse than God made them. I don't see how that is made out. We are just exactly what God made us; no more and no less. We take upon ourselves the vices in this world which comes to us naturally. It is not God's fault, but we are as God made us. If a man has a clear head, a stout heart and a ready hand, he may, if he stays in his office, work himself into a large and lucrative practice. But for a man who sits in his office with good clothes, lux-

urious surroundings and everything that is conducive to his entertainment and enjoyment in this world, it becomes him little to cast slurs upon the young man who is starting out in life for having made some misstep in it. God has placed us here to do what little good we can to make some life pleasant; to make some soul happier. There is no grander or nobler or better work in this world than that.

I heartily commend Dr. Metcalf for his effort. He has always in years past given us just such a paper. We love him and honor him, and I trust that the time is far distant when the change shall come upon him and he will be no longer among us. God bless him!

Dr. S. E. Knowles.—I don't know why the chairman should have selected me to sermonize; I am not given to it at all. The paper was of a great deal of interest. It was largely a selection of aphorisms to which I think we can all subscribe.

In regard to the formation of character, I think there is no question as to heredity being a very important factor; but heredity does not constitute all that enters into the formation of the character of a grown person. It is a painful thing to say, still it is true, and I think will be borne out by anyone whose occupation is to teach very young children, that the average child has no idea of property rights. If it sees a thing and wants it it will take it. The average child will not hesitate to resort to deception, if it fears punishment from its teacher. Now, it is rather a hard thing to say that the average child will act in that way, yet it is the truth. All that children need is education; they have to be taught that things that do not belong to them must be let alone; they must be taught—I was about to say as a matter of policy—to seek for a reputation for veracity. Outside of any ethical consideration it does not pay anyone to acquire a reputation for not telling the truth.

The professional man, I think, is gauged by a different standard from a man in ordinary occupations, merchandise and things of that character. You take a clerk in a store, for instance: he is valuable to his employer in proportion as he succeeds in persuading people to buy things, not that

that they do want, but that they do not want. Any clerk, knowing the price of goods and the details of the store, knowing the location of goods, can sell to a prospective purchaser what he requires. But a clerk who does this and nothing more is not valuable to the man who employs him; the employer wants a man who can succeed in getting rid, so to speak, of the greatest number of goods he has to retail. Suppose, for instance, we were governed in our relations to our patients by an idea similar to that; suppose we should persuade people that something is required that is not required, what would they think of us? Practically people come to us with a confession of a lack of knowledge. It is not a case of matching wits; they have no judgment in regard to the goods that we dispense; they place themselves entirely in our power. That is the reason that professional men are measured by an entirely different standard. All the time we should keep that matter in mind. Now, I don't think the average dentist is any worse or any better than the average man in any other occupation. I would like to think that he is, but I do not think that he is. This entire matter of advertising a man's work is nothing but the cropping out of this very thing I refer to. I cannot conceive of any absolute necessity for departing from the right. If a man cannot honorably conduct himself in the profession he has chosen, there are other occupations open to him; I am sure the shoveling of sand is not overdone. It seems to me he ought to realize that it will not pay him in the end to do anything that he will afterwards be ashamed of. Our judgment must depend largely upon our personal experience. In my own experience I have never been confronted with the necessity of doing anything of the kind. I have very extreme feelings in regard to the impropriety of advertising, or anything of that kind. We have had two cases of falling from grace, you might say, within our own local society. Two gentlemen who have been honored with the highest positions in this society have recently resorted to methods that are very objectionable. I hold that in these cases there is no such thing as actual necessity. It is the latent wickedness that crops out.

Dr. C. L. Goddard.—All the previous speakers have well said that you cannot educate honesty into a man; in other words, that you cannot teach honesty unless the man has character himself. This has been well borne out among those that I have had occasion to be connected with in teaching. One instance is in my mind of a young man who during his college course seemed to us one of the most perfect gentlemen we ever had. He was a member of a fraternity whose precepts were strict, and in that fraternity he taught the proper precepts to new members; yet, within two weeks after receiving his diploma, he became one of the worst advertising quacks on the coast. He was so bad that he didn't put his own name to the advertising, but advertised Blank and Blank Dental Parlors, and so forth. On the other hand, sometimes honesty, if you put it that way, can be taught. I remember another young man that you might call a quack in embryo. He came to the college because he wanted to learn to be a dentist; he wanted to study, wanted to learn to do various kinds of work, in order, when he acquired the knowledge, to spread his advertisements far and wide and make lots of money. He was what you might call an honest quack; that is, he didn't know any better; he didn't know how the profession regarded those things. It did not take him long in his college course, in contact with his fellow students, to learn that others looked upon that in an entirely different light; and his notions were changed entirely. He is, to the best of my knowledge, now one of the most ethical members of the profession. I think that there is some misconception in what advertising means. We use the word unadvisedly sometimes. We do not all read the code of ethics often enough to remember its precepts. It is something like the Bible: we know there is lots of good in it, but we don't know just how it is expressed. The code of ethics says that it is not professional to resort to the public prints and so forth in calling attention to special kinds of work, to lowness of prices, and unprofessional claim to superiority over other practitioners; but it expressly says afterwards something like this: That "there is nothing in this code to

prevent one from issuing a card with his name, title and address," and that is all that is necessary. So, I say, a young man who lacks his bread and butter may advertise his name, his title and his address. He may let people know where he is and that he is ready to serve them. There is nothing in the code of ethics to prevent it. If he lives in a community in which a paper is published there is nothing in the code of ethics to prevent his announcing to the inhabitants of that region that he is ready to serve them. That is not unprofessional advertising. I think that is all that any young man or poor man needs.

In the closing part of Dr. Metcalf's paper he has some valuable suggestions. I think during our present session it would be wise for us to take some action upon it. We are anxious to get young men into the society. During at least the first year of a young man's professional life, according to my own experience, cash is not very plentiful. He suggests that dues be remitted for a year. I think that is a most valuable suggestion, and I think that we should pass a resolution that young men entering into practice may have a year's dues remitted, provided that they join the society within the first year of their practice. I think it would bring more members into the Association than anything else we can do. No matter whether those young men have just graduated from a college (any college), whether they have studied hard and passed a good examination before the State Board, whether they come from some other locality to settle among us, the first year in a new place is always a hard year, whether one is a beginner in the practice or a beginner owing to change of location. I hope that some action will be taken before the Association adjourns in pursuance of Dr. Metcalf's suggestion.

Dr. F. L. Platt.—No matter how long some of us may have been practicing, how old we are, how much experience we have had, there are things in that paper we can all take home and profit by them. I hope all of us will read it carefully, read it again, pick out the words of advice that best suit our own cases and then live up to that advice.

A REPORT ON MICROSCOPY.

BY ARCH C. HART, PH.B., D.D.S., M.D., SAN FRANCISCO, CAL.

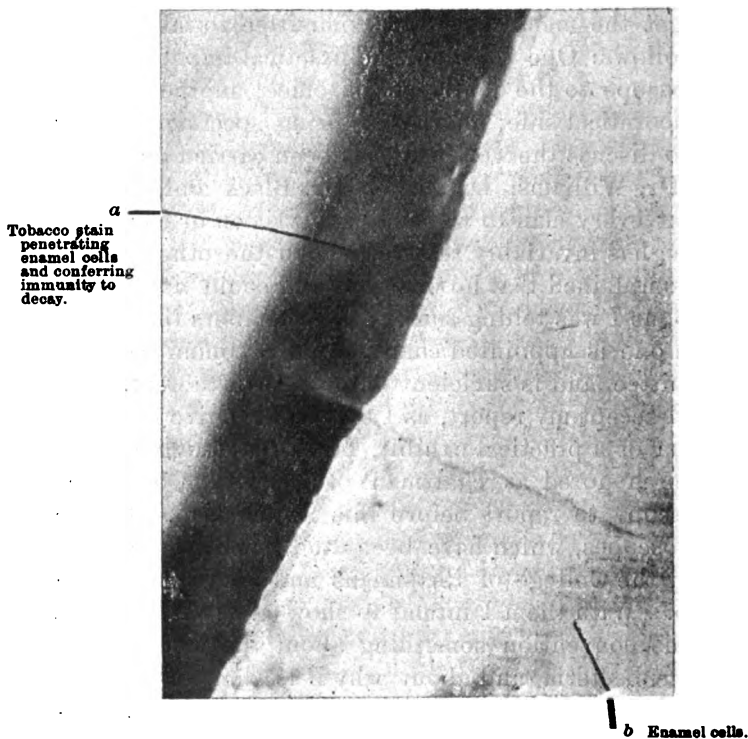
[Presented before the California State Dental Association, June 22, 1898.]

WITH your permission, Mr. President, I will render a verbal report of the work of the Committee on Microscopy. For this committee to make a report, I believe, is something new in our Association. As chairman, I have tried to get the members of the committee to take up the work as follows: One to show the practical importance of the microscope to the dentist in his office; another to take up the theoretical side; another to bring specimens of his work or to discuss the work that has been carried on in the East by Dr. Williams, Dr. Miller, Dr. Black and Dr. Andrews; but every man to whom I have written or consulted personally, has invariably referred me to the other gentlemen, or complained that he was sick and could not do the work. So, as I was telling some of the members this morning, when one is appointed chairman on a committee he is the committee, and is sufficient unto the evil thereof. So, if you will accept my report, as I expected to give it chiefly in the form of a practical exhibit, I shall be delighted, and feel myself honored as chairman of the first Committee on Microscopy to report before this Association. I have here microscopes, which have been kindly loaned the Association by the College of Physicians and Surgeons of San Francisco. With them I intend to show at several periods during this convention something about the teeth, something about bacteria, and about why it is that we find people's teeth decaying at one time and not at another. Because any of you who have had experience with the mouth itself know that it is impossible by any means yet discovered to thoroughly sterilize the oral cavity. We cannot prevent the growth of bacteria in the mouth. We can, however, arrest the growth; we can make it hard for bacteria to grow on the teeth; we can place the teeth so that they are immune to decay. We find this has been done by nature for many years, else we would all be like the hens, without teeth.

A man comes into the office saying: "I have had fillings

in my mouth twenty years. There they are. They were well inserted." You examine and find no decay. He tells you he takes no special care of his teeth. He says: "I never do anything for them; I rub them once in awhile with my fingers and give them an occasional swipe with my tongue. My teeth don't decay. My wife pays great attention to

FIG. 1.



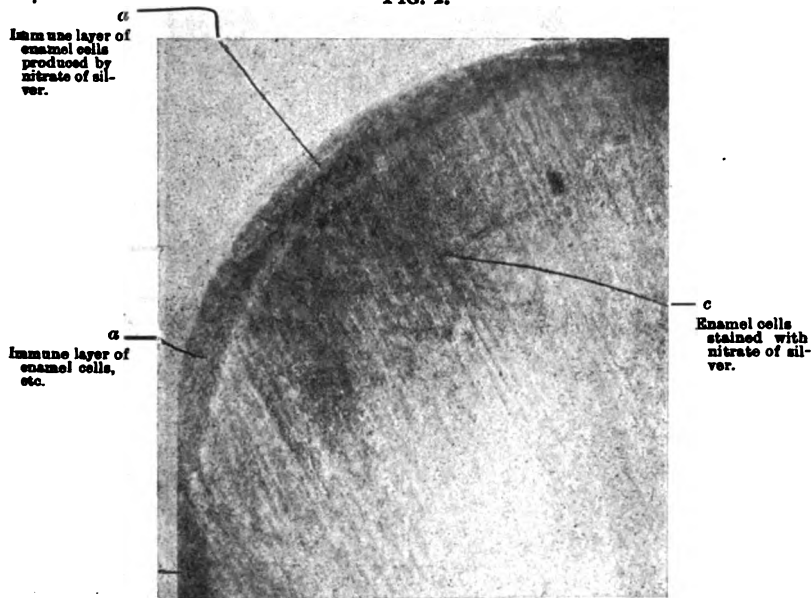
Section of tooth showing penetration of tobacco stain into enamel. Tooth, lateral incisor from man aged 53. Has used tobacco since he was a boy. Mesio-approximal cavity with tooth-structure black from infiltration of stain. Cavity has been there for years, never became any larger, so he never had it filled. Tooth evidently immune to the action of bacteria. Tooth lost by loosening and dropping out.

her teeth, she is forever brushing them, and I am continually paying money for the care of her teeth. Doctor, I think this cleaning and scraping of the teeth causes them to decay."

Now, it is just such cases as this man's mouth presents

that demand investigation. We must learn the reason for these conditions; find why the mouths of individuals whose teeth once were susceptible to decay have become immune; for these teeth are immune to decay, irrespective of the dentist who did the work. These teeth do not decay, although the mouth contains bacteria by the million. We can learn a great deal from nature; she is a pretty good dentist after all, and often knows how to take care of these conditions far better than we. I wondered why it was that oftentimes after people had been to the dentist and had him

FIG. 2.



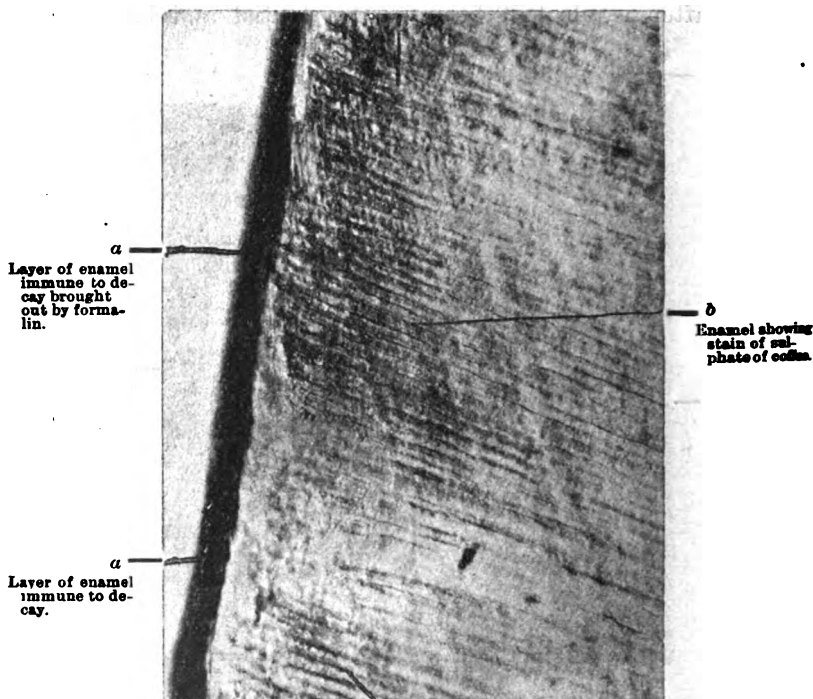
[Objective $\times 6$; Eye-piece, 2 in.]

Section of enamel showing penetration of nitrate of silver into enamel partly decomposed by bacteria. *a*, immune layer of enamel deeply stained. Taken from a young lady's mouth in which white decay was rapidly destroying the teeth. This tooth was treated three years ago to nitrate of silver without filling. Decay stopped in all teeth thus treated. Tooth crowned.

scrape off the stain that for years had accumulated around the necks of their teeth the teeth would then begin to decay. I will illustrate the reason for that from these specimens I have here for your examination, which show sections ground from teeth immune to decay. (See Figs. 1, *a*; 2, *a*; 3, *a*.)

You all know Dr. Black, who is doing so much for dentistry, who has done more to do away with superstition than any one man I know of; whose work has been so elaborate and excellent. He came to the conclusion from study and investigation, which was carried on to the second and third decimal, that there was no real difference in the hardness of teeth; that the hardness of teeth was practically all the

FIG. 3.



[Objective $\frac{1}{8}$; Eye-piece, 2 in.]

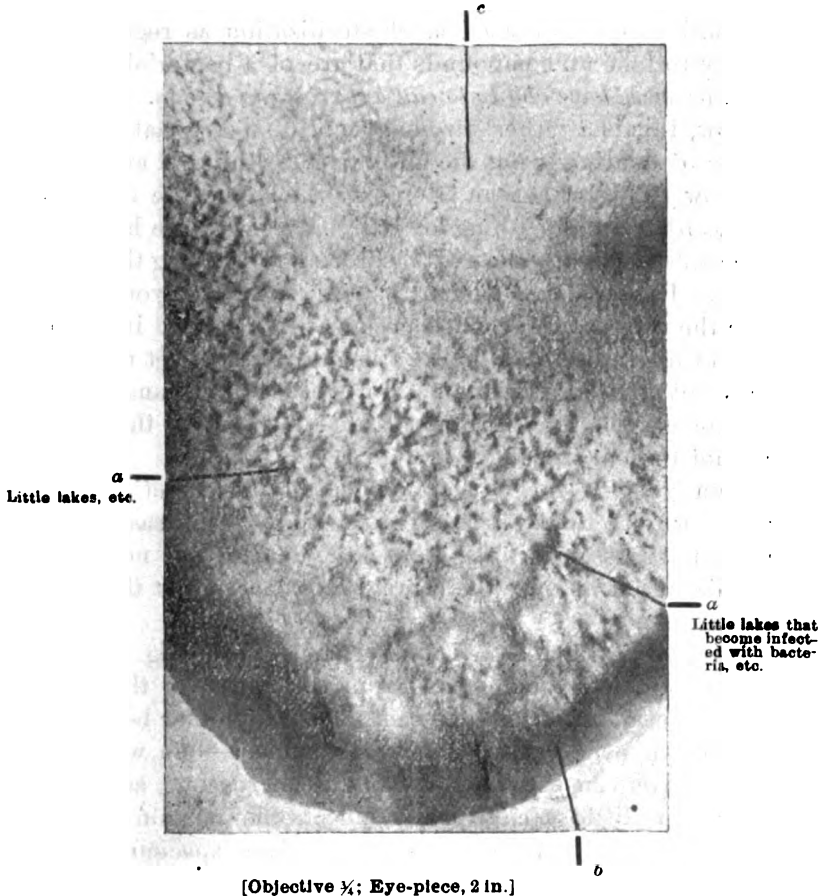
Section of enamel. Tooth hardened in alcohol 50-per-cent. formalin 10-per-cent. while still warm. Left 6 days. Stained with Rubin S and eosin. Mounted in glycerol.

same; that is to say, they were all hard enough to be filled with gold. But it was the conditions that were present in the mouth that made the teeth decay. These conditions may be produced by disease or they may be due to conditions like, for instance, pregnancy. Where there is a large quantity of blood circulating through the organs of the body

the heart is bigger, the liver bigger, the temperature of the body is nearly a degree higher. With this increase in fluid and temperature bacteria grow better.

You will find in studying some of the specimens shown

FIG. 4.



Section of a root of a tooth showing dentine, and the little lakes and canals in the true bone forming the apex of the root. *b*, Peridental membrane. *c*, Dentine, compact and not easily infected sufficient to form an abscess.

under the microscope several sections that show a layer of enamel that has become infiltrated with coloring matter and other substances. (See Figs. 1, *a*; 2, *a*; 3, *a*.) I have only found this peculiar condition in those teeth immune to decay. In some of the specimens I have tested and found

that it was tobacco stain. (See Fig. 1, a.) In other mouths where tobacco was not used I could see that the teeth had become immune, and a little black stain would be seen inside of the mouth on the teeth, next to the gum margin. In some mouths it would only be a mere line, still it shows immunity.

Dentine does not need much sterilization as regards its ability to take up compounds that are of a bacterial nature that, *as such, have ability to cause the tooth to abscess.*

Now, this is a rather strong ground to take, that sterilization of dentine is not the all-important thing. I am going to show you what I mean later on. You take the canal of the tooth. In the filling of that canal we have heard it often talked about—the great importance of filling the root-canal. Patients are constantly going away from your office with the root-canal not filled because you can't do it. You haven't filled the canal, haven't begun to fill it, yet the root does not give any trouble. Not because that canal itself has not become infected, but because the apex of the tooth has not become infected.

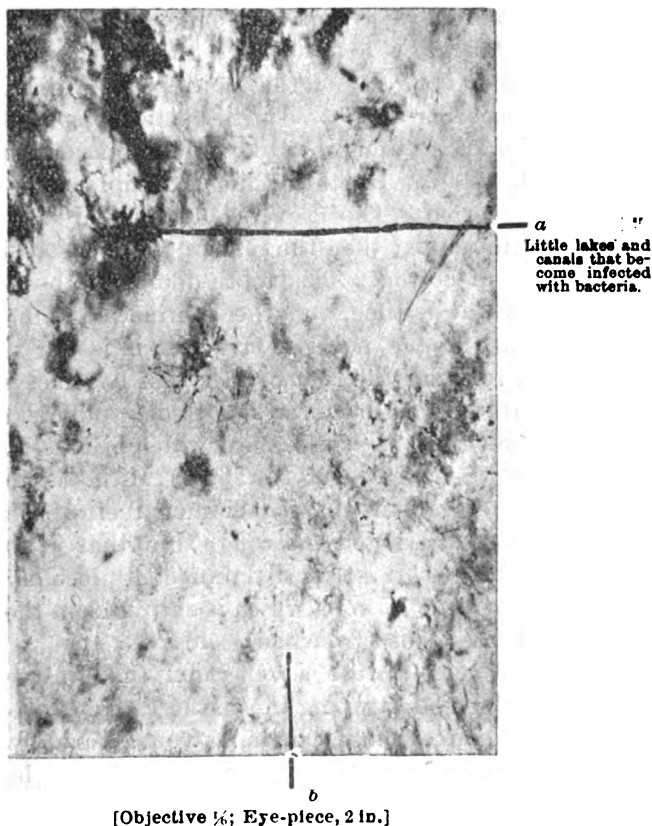
I am going to show you from some of these sections the reason why teeth give trouble at the apex. The reason why a tooth abscesses is not because the dentine has not been sterilized, but because the lacunæ and canaliculi at the apex are infected.

It is this portion of the root down here. (See Fig. 4, a, b.) These little lakes and canals are in the apices of the roots of the teeth almost just the same as in any other bone tissue in the body. These cells all connect—one with the other. You can see them under the microscope, as I will show you, little canals that connect one portion of the tooth with the other. (See Fig. 4, a. Same specimen, only higher magnification.)

A man will extract a tooth and show to the patient what he believes is an abscess sticking to the end of the root. The patient thinks he has got rid of something very detrimental. It perhaps never caused him any trouble. The "dentist" says: "See how much good I have done you," and the patient goes away feeling that the dentist has been a wonderful savior, when in fact that which he calls an abscess is

nothing more than a cushion that nature puts on the end of the tooth to help support in mastication, and perchance prevent the dentist from forcing his root-canal filling beyond the apex. True, it has become inflamed and infected, but it is not an abscess. You never find it on your implanted teeth, for they are without this cushion. When you cut off

FIG. 5.



Same section of tooth as Fig. 4, under a higher power. *a*, Shows the little lakes and canals that become infiltrated with bacteria, etc. *b*, Shows the dentine compact and not easily infected so as to cause an abscess.

the apex of the root you remove the abscess; you cure the abscess because you remove that sixteenth of an inch from the end of the root that is infected. That is all that needs to be cut off. You remove that little piece of bone, with

its canals and lakes teeming with bacteria. You need not cut it off; just smooth it with a finishing bur, for it is only a little that needs removal, *and this is generally unnecessary, as it is easily disinfected.*

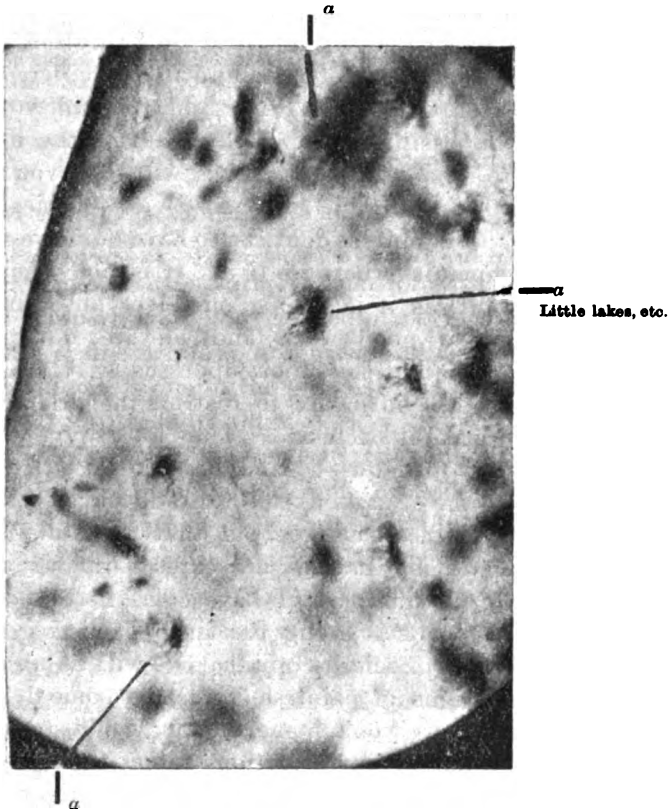
In filling the canal, it is quite difficult to fill beyond the apex, because the filling immediately runs up against this piece of tissue. It is the peridental membrane (abscess so-called) surrounding the apex of the tooth that prevents your filling material from going beyond the apex. Your patient says it hurts. When it hurts the filling presses on the membrane at the end of the tooth. When that little membrane becomes infiltrated with bacteria from the infected condition of the apex it is like a felon on your finger.

I will tell you another thing: People come to have a crown inserted. The crown is cut off and root-canal filled only at the apex; then the rest of the canal is filled with a little bit of cotton. That tooth does not abscess. It may go weeks at a time, and the dentine contain millions of bacteria. So the point I make is: it is not the mass of dentine forming the root proper that becomes so infected, so infiltrated with bacteria and their products, as it is that little point right near the apex, which is true bone and not dentine. (See Figs. 4, a; 5, a; 6, a.) If this is not true, why then do not implanted and deciduous teeth abscess? Surely these roots are jagged and rough, but that is not the cause of the abscess; it is this little infected piece of bone forming the apex of the root, which is cut off from the implanted tooth and absorbed from the deciduous.

When I come across a root-canal that I cannot get into easily without destroying the tissue I keep out of it. I am able to disinfect these canals, as you all are, by placing in the canal oil of cinnamon or chloride of zinc, leaving it for a period of time, say a week or maybe two weeks, until I have completely sterilized the little piece of bone at the apex of the root. It is not the removal of the nerve that causes the trouble, because we take out so many nerves and our patients call them the best teeth in their mouths. The microscope has shown that the pulp (so-called nerve) receives its blood supply not by a separate artery but by osmosis and diffusion from the blood-supply sent to the peridental

membrane. Now, when the pulp is devitalized the blood that was formerly diffused through the dentine and true bone forming the apex no longer enters the tooth, hence the peridental membrane gets a greater quantity of blood, and the tooth becomes firmer in its socket. This, to my

FIG. 6.



Same section of tooth as Fig. 4, under same power as Fig. 5. Shows how abundant these little lakes and canals are in this true bone forming the apex of the root of the tooth. These lakes and canals connect, as can be seen by examining the illustration closely.

mind, explains why dead teeth as a class do not pyorrhea, and why pyorrhea teeth often become firm after the nerve has been removed.

In examination under the microscope of some of these sections of teeth you will find a double layer; there are two layers here. (See Figs. 1, 2, 3.) That outside layer is like

sticking plaster, something that just adheres to the outside of the enamel, to prevent the enamel from becoming infected. When you coat that tooth with nitrate of silver, chloride of zinc, bichloride of mercury, formalin or anything that has the power of hardening tissue (as here shown in illustrations) you prevent the bacteria that may be on the outside from penetrating (as I shall explain further in a paper that I shall read on Evolution of Decay) you will render the tooth immune to decay, irrespective of the condition surrounding it. I have found, you all have found, it impossible to thoroughly sterilize the mouth; impossible to remove all bacteria. I will show you this afternoon specimens that I trust may be of practical value to dentistry. We want, as dentists, to have ourselves respected in the community where we live. It is not so much dental law we want, as it is among ourselves an active determination to do good work and elevate our profession. The people oftentimes look upon us as a class of professional men, who desire to restrict the practice of dentistry—to make it exclusive. They look upon it as a kind of a cinch, you know—a kind of a corner; that we don't propose to have anybody else invade our territory. We have to convince such people that we know more than the average man; that we are experts in our work. We all have to do our part. I have come here to do the best I can. My work is along the line of microscopy. It is along the line of microscopy that we will be able to make the gilded signs of painless-extraction come down. Dentists of that sort won't spend money, won't spend the time it takes to pursue investigations along the line of microscopy. It requires hours and hours of patient study and work. If you want to get ahead of these men, want to raise the educational requirements of our profession, make our profession a learned profession, one respected by mankind, you must work—burn the midnight oil and study. If every man would come to this meeting prepared to do his best in his way, instead of having fifteen or eighteen papers we would have sixty papers, and every man would be prepared to clinic. Instead of amending the dental law, as has been suggested, I would suggest that we amend our

constitution so that no man shall have the privilege of this Association, the privilege of listening to the discussion of papers, unless he himself presents a paper or does some work.

[Some fifty specimens were shown fully illustrating the report. They were viewed with great interest by the members of the society, and one and all expressed themselves as delighted and edified by the exhibit.—REP. GAZETTE.]

NOTE.—The author acknowledges indebtedness to Dr. E. S. Pillsbury, of 1837 Scott street, San Francisco, for his kind and skillful assistance in the work of micro-photography in the production of the accompanying illustrations.

PARAFORM AND ITS USES.

BY ARTHUR A. FOWLER, D.D.S., SAN JOSE, CAL.

[Read before the Stomatological Society of San Jose, Cal., June 24, 1898.]

THIS paper is written with the idea of bringing before you a comparatively new method of saving the teeth.

Paraform, a fine white powder containing 85-per-cent. formaldehyde gas, is one of the greatest germicides known, and is almost insoluble in water.

From paraform we obtain or have an aqueous solution known as formalin, being 40-per-cent. formaldehyde. This is the common solution, which may be obtained at any drugstore, and can readily be mixed with water, thus obtaining any required strength.

How may decay be arrested when once started? Well, in one way only. Having been told that formalin would do thus and so, after using it myself for one year I find, according to my experience and knowledge, that it will do all that is claimed for it.

Now, do not take my word for this, nor that of those who have written upon the subject before, but try it for yourselves.

MODE OF USING FORMALIN.

Having found a mouth in which decay is prevalent, and where the teeth are of a chalky nature, first, apply rubber-dam, care being taken to ligate each tooth; second, with a pledget of cotton saturated with 25-per-cent. pyrozone, cleanse all chalky spots, thoroughly drying in with hot air,

then apply 20-per-cent. formalin to the surface of the affected teeth, care being taken to not allow the formalin to come in contact with the soft parts of the mouth, as it will cause an angry slough. This slough is not like that caused by As_2O_3 , it can be easily removed, and will heal rapidly; then, with a continuous blast from a hot-air syringe, dry it into the teeth quite thoroughly, continuing same for twenty or thirty minutes; third, apply equal parts salol and fir balsam, drying this in thoroughly, the object of the last operation being to seal the tubuli of the tooth.

Formalin not only destroys bacteria, but also hardens tooth-structure. This is proved by placing a comparatively soft tooth in it and allowing it to remain for several hours. On taking it out the tooth will be found to be quite hard and tough.

Now, then, taking this as a starting point in dentistry, finding it will harden the tooth and retard decay, why not unite it with many of our filling materials? For instance, place about 2-per-cent. formalin in the filling materials used. I have been using 2-per-cent. in my root-canal fillings, composed of salol one part, paraffine two parts, and 2-per-cent. formalin, which has been recommended by Dr. A. C. Hart of San Francisco. He now substitutes Canadian balsam for paraffine, claiming it to be more sticky and better adapted to the filling of root-canals.

Another use I have for formalin is in sterilizing cavities before filling. With a pledget of cotton saturated with 40-per-cent. formalin, place in cavity and dry in thoroughly with hot-air syringe; then wipe out cavity with 2-per-cent. solution of formalin in fir balsam; then proceed to fill. This method I have followed with success for over a year.

Formalin will stop a toothache, hence you need not be afraid to apply over a sensitive nerve. It makes an ideal antiseptic for your instruments, and will not corrode nor rust them.

You have often noticed that when removing a piece of bridge-work or a cement filling that the cement in the solid part is very foul. Now, through the kindness and genius

of Dr. Hart of San Francisco, I think we can overcome this by adding to our cement a germicide. To the cement he adds a small quantity of paraform, which is by strength 85-per-cent. formaldehyde. This does not destroy the virtue of the cement, but, on the contrary, makes it more sticky. Then, again, paraform is almost or comparatively insoluble in water, hence it adds strength to the material.

Taking all of the foregoing for facts, which I hope they will prove to be, I think we are beginning to attain the high standard which a dentist should strive for, namely, a savior of dental organs by medicines, and not by mere mechanical skill.

Selections.

THE STATUS OF THE DEGREE D. D. S. UNDER THE NEW LAW.

BY DR. W. G. CHASE, PHILADELPHIA, PA.

WHAT is the status of the D.D.S. under the new law? In other words, to what extent may the holder of this degree lawfully prescribe medicines for his patients to be taken by the alimentary canal, or in the other usual ways of administering medicine?

In all States there are laws purporting to regulate the practice of dentistry, some more stringent than others. I have yet to find in one where the status of the D.D.S., or what constitutes dental practice, is defined. They all say a person must either have a diploma, or pass an examination before a State board, and in many States, in fact most States, require both a diploma and an examination before a person can practice the profession of a dentist. Some States are more stringent in their requirements than others.

If you will examine the dental laws of the different States of these United States, you will find in most, if not all, a clause which exempts a physician from offending in the extraction of teeth, etc. On the other hand, examine the laws relating to the practice of medicine; do you find any reference to the dentist? No; or, if you do, you have found

more than I have. I have no objection to the M.D. extracting teeth (as far as I am concerned individually he can do it all), but this shows that the laws of the two professions are not fully in accord. Nor do I wish to be interpreted as antagonizing the M.D., for I am not, for we often need him, and badly, especially when a certificate of death is necessary; but, fortunately, we as dentists do not often kill our patients.

Notwithstanding that the laws regulating the practice of medicine say that a man must have the degree of M.D. in order to prescribe medicine, and that laws regulating the practice of dental surgery say naught on this subject, I have always advocated and practiced the prescribing of medicine in such cases as I was called upon to treat which, in my judgment, needed medicine internally. I believe I am fully within my rights as a dentist in so doing.

Claiming that the degree of Doctor of Dental Surgery, as conferred by the colleges and universities chartered under the laws of the different States of these United States, gives the holder thereof, when properly approved by the State Board wherein the holder intends to or does practice, the right and authority to administer anesthetics, drug, or remedies for the alleviation of such diseases as come under the dentist's care, I also believe that in case he (the dentist) failed to so prescribe, or saw to it that the remedies needed were prescribed in case he felt himself incompetent (which would be a sad case), he would not be doing his duty.

Mr. Benjamin Alexander, an attorney-at-law of Philadelphia, in a paper read before the Garretsonian Society of the Philadelphia Dental College, says: "If it be discovered in the treatment of a patient that an internal medicine is necessary to improve the part treated or operated upon, it is obligatory upon the dentist to prescribe; if unable to prescribe, he should immediately recommend the patient to a physician for the purpose of obtaining the necessary remedy. A failure upon his part to attract the patient's attention to his condition would render the dentist liable." I do not believe we as dentists encroach upon the physician's prerogatives.

There are diseases that come under the dentist's care that he should treat, mainly from the fact that the M.D. knows little if anything of them or their treatment.

If the dentist's hands were tied through the law not giving him the right to prescribe, he would be forced to do one of two things—violate the law, or say to the patient: "I know what to give you, but the law will not permit me. I will have to refer you to a physician. I can only fill your teeth, or furnish you substitutes." I do not believe the law so hems us in.

If dentists had no legal or moral right to prescribe medicine for their patients, dental surgery would cease to be a profession; it would be merely a trade. We would have no need of colleges to teach it, nor examining boards to regulate it. I do not believe it possible for a man to successfully practice the dental profession except he is well-grounded in pathology, materia medica and therapeutics, as well as in the other branches of the profession.

Judge C. G. Garrison, of the New Jersey bar, says a dentist may be defined to be one whose occupation is the care of the teeth when sound, the treatment of their deformities and diseases when unsound, and the adaptation of substitutes for them when lost by age, accident or disease. He further says that his definition embraces the hygiene, not only of the mouth, but also of the general system, of which the teeth are a sensitive index, and includes operations upon the alveolar process and adjacent bone.

In a case of caries, or necrosis of the jaws, without the knowledge of medicine and the lawful right to prescribe such remedies as the case demanded, the dentist most assuredly would not be able to do his full duty by the patient presenting such a case.

I also call to your attention an opinion given me by William W. Smithers, of Philadelphia, a lawyer of note: "A Doctor of Dental Surgery is neither a physician nor a surgeon, properly so-called. He is a surgeon of a limited character, and his skill must be exercised within the limits of dentistry. It extends to care and treatment of the teeth and mouth in general. Obviously he can have nothing to

do with a fractured leg or a case of indigestion. Independently of any treatment of the mouth or teeth, the dentist can neither perform a surgical operation nor administer medicine. But where the administering of medicine is subservient to the practice of dentistry, it is perfectly lawful. For example, the giving of gas, or the prescribing of a drug to counteract the effect of a diseased or extracted tooth upon the stomach, would be entirely proper. It must rest with the individual practitioner to use his judgment and say under the circumstances of each case whether the administering of the medicine is necessarily incidental to the practice of dentistry."

While the subject of a national law is being talked of and hoped for, there should also be a law not only regulating the practice of dentistry, but it should at the same time define in a clear and concise manner of what the practice of dental surgery consists, and what dentists' rights and privileges are. If you remember when you received your degree, the one upon whom devolved the duty of conferring it addressed you in language similar to this: "By the power in me vested by the charter and commonwealth of (naming State), I do confer upon you and each of you the degree of Doctor of Dental Surgery, and therewith all the rights, privileges and immunities of this degree."

It was not explained to me, nor do I believe to any of you, just what was meant, but all were left to interpret these words according to their own ideas. I have kept away from the old subject of dentistry being a specialty of medicine, as I do not care to get into an argument on that subject. I believe we as dentists want to go hand in hand with the physician as brothers and equals, and not as inferiors.

The opinions I have given are not based entirely upon local laws of Pennsylvania or New Jersey, but the gentlemen have tried to give a common law opinion, and I think under those opinions a dentist has the legal right to prescribe medicine for his patients for all diseases that come under the dentist's care.—[Cosmos, July, 1898.]

Correspondence.

THE STATE DENTAL LAW.

EDITOR PACIFIC MEDICO-DENTAL GAZETTE: I have read the contents of the July issue and find them very interesting. Regarding the discussion of the law on dentistry—present, amended and new—the ideas expressed by Dr. S. E. Knowles (at page 326 et seq.) are of more practical value than all the others combined. He gets right down to the spirit of the matter; brings the dentist and public harmoniously together. The law that one speaker declared to be as “plain as A B C” I believe is the next thing to consummate nonsense. In the first place it does not define what dentistry actually is; then how is it possible to prevent or prosecute an artist or practitioner for doing something not defined or capable of explanation.

“All as plain A B C.” Let us see. Dentistry is only the elongation of the Latin word “*dentis*,” which signifies tooth; and the teeth are merely the appendages to the skeleton, and located in the maxillary processes; and are all the natural growth of the material organism. Artificial substitutes form no part of dentistry; no more than the artificial limb substitutes are a part of orthopedy, or artificial eyes are a professional adjunct of an oculist, as these substitutes may be made and attached by an artist without diploma or encroachment upon the college-graduate specialist whatever. Maxillary necrosis, antrum abscess, tic douloureux, periostitis, linguitis, tonsillitis, cleft-palate, gingivitis, pyorrhea, evidently form no part of dentistry. A chiropodist confines his attention exclusively to the toe-nails; if he goes beyond these he can no longer be classed as a chiropodist, but a general practitioner. So with dentistry, strictly interpreted: the dentist's sphere of practice is alone and exclusively on and with the teeth; if he goes a step beyond these skeleton appendages he then becomes a general practitioner. Even at that, let us see how small is his sphere of action. Detaching a tooth from its alveolar socket by means of cord, wedge, screw, lever, forceps, turnkey, or any other agency, would be practicing dentistry. To apply any medicinal agent to devitalize sensitive dentine or ex-

posed pulp would be practicing dentistry; but would elongating a partially destroyed crown or contouring the same with metal or mineral agents be strictly dentistry? Very doubtful. If so, then elongating a shorter leg, or foot, or fingers, or contouring any of their deformities, natural or mechanical, by any of the means and methods known to the arts, would be a violation of the medical law, and subject the offender to all the penalties thereof, which we know could not be the case. Then, if not illegal in these cases, then certainly not illegal in dentistry. "As clear as A B C." Maybe I can't so "c" it, though possibly our handsome boys that are sailing in the zenith of oral literature will concert their mental energies and unravel the unsolved perplexity and give us a solution as clear as mud. It is to be hoped so.

Stomatology, our *literati* tell us, is a better term than dentistry; it expresses more, is wider in horizon, higher in altitude, deeper in depth. No doubt of it; the more I look at the word the more I am impressed with its complex grandeur. The proposed statute to the next legislature should be entitled "A statute to regulate the practice of stomatology in the State of California." What a wave of mental vibration it would produce among the lawmakers! After being fully comprehended the beneficent results would be incalculable; then everything would be as plain as A B C and X Y Z.

A word more in regard to the present law. As a jurist I will say (having practiced in the highest courts), that statutory or common law is never construed literally, but in the spirit of its purpose. To construe it literally is to give it an oppressive harshness unwarranted and inexcusable. The law says that "all practitioners in the State at the time of passage of this Act must within six months obtain certificates and register same with the county clerk," etc. The courts have construed this section to mean that all practitioners in the State at the time of passage of said Act can continue unmolested. Now let us go a step further in the restrictions legally imposed upon medical and dental practitioners. If all practitioners were presumably well qualified there would never have been a need of laws defining their

rights and restrictions; the laws are for the sole purpose of protecting the public against incompetents. Now, in the full meaning and spirit of the law all fully competent practitioners can and have the right to diagnose and prognose bodily ailments without authority from State examining boards. Look at it and see what a multiplicity of accessories to bodily injuries there would be if the law was strictly enforced. A man would be obliged to stand by and see another bleed to death, not daring to bind the artery with ligatures or improvised tourniquet; or rearticulate a dislocation reasonably; or revive the weak with alcoholic stimulants, or administer anesthetic remedies to alleviate pain—no matter how well qualified, but must remain simply inactive, barred by a cruel statute; hands tied; no attention permitted until the distant licensed M.D. arrives. Let a competent surgeon-dentist or M.D. once get hold, no matter how restrictive the laws are, he can, if properly defended, defy prosecution; no jury would, understanding fully the spirit of the law, bring in a verdict of conviction.

Sacramento, August 1, 1898.

U. SMITH.

Reports of Society Meetings.

SAN FRANCISCO DENTAL ASSOCIATION.

THE regular meeting of the Association for August, held on the evening of the 9th, was fairly attended. Vice-President Geo. N. Van Orden was in the chair.

Dr. Deichmiller's patient failing to be present, the clinic announced for the afternoon went by default.

Several applications for membership were received and referred.

The paper for the evening, entitled "Vulcanite," was presented by Dr. C. H. Bowman, and developed an entertaining and instructive discussion, which was participated in by Drs. R. E. O'Connell, L. Van Orden, B. Boeseke and others.

The advisability of the Association taking action toward a more energetic enforcement of the State dental laws was broached, and will likely be a subject of more mature consideration at the next meeting.

General Medical Miscellany.

CURE FOR CARBUNCLE.—According to Miremond, five to ten grains of red precipitate ointment, applied with friction for one or two minutes around the surface of a carbuncle, causes immediate amelioration and resolution within two or three days without suppuration.—[Ex.]

CHLOROFORM ANESTHESIA MADE DELETERIOUS BY GASLIGHT. An unusual accident recently happened in the Catholic Hospital at Herne, in Westphalia. A man who had been shot in the abdomen was brought to the hospital at night and immediately operated upon by gaslight. The operation was very difficult, and the chloroform narcosis was kept up for four hours. As a result of the decomposition of the chloroform by the gaslight, producing powerful chlorinated vapors, two of the surgeons and several of the Sisters of Mercy were overcome, and one of the latter has since died. [Medical News.]

SURGICAL HINTS.—Never allow a rubber plaster to come in contact with a surface uncovered by normal skin. Since it cannot be sterilized by heat, it must be considered as being dirty.

Before operating always find out if the patient has any malarial history. The discovery of this fact will save you many a bad scare when temperature rises suddenly after operation.

An aseptic dressing placed over a wound that is expected to unite by first intention, should be left undisturbed until it is time to remove the stitches, or until there is reason to believe the case is not running the expected aseptic course. [Int. Jour. of Surgery.]

THE COATING OF THE TONGUE.—1. In severe infectious diseases the tongue is coated with a brownish fur, which consists partly of the remains of food and partly of dried blood. The microscopical examination of the coating removed from the tongue exhibits, in such cases, a profusion of epithelial cells and hosts of fungi of various forms. In addition to these, there is a multitude of dark cellular bodies, derived doubtless from the corneous and exfoliated

epithelium of the part (Bizzero). Schech again calls attention to the occurrence of a black fur, which is probably occasioned by the formation of pigment on the papillæ on the tongue. Ciaglinski and Hewelke trace an appearance similar to that of a pigment-forming yeast fungus. 2. The tongue of infants is normally coated with a white fur, and a similar appearance is found in adults when the stomach is deranged. Microscopical examination shows epithelium, a few salivary corpuscles, and very few fungi.—[Dr. Rudolf V. Jaksch, "Clinical Diagnosis."

BUTTERMILK, which at one time was thought only fit for the hogs, as its virtues are better known is eagerly sought after as not only a healthy but a very pleasant drink, especially by the dyspeptic and old people. Down in the vicinity of Wall street the other day we noticed a stand on the corner of Liberty street, around which several old men, most of them millionaires, were gathered, drinking great glasses of rich, iced buttermilk. This, one of them said, was his lunch, and he often came down town to get his drink. The lactic acid dissolves the phosphate of lime, and keeps the blood in good condition, thereby preventing or retarding that ossification of tendons and arteries so common in old people.—[N. Y. Medical Times.

Dental Excerpts.

CEMENT FOR BROKEN CASTS.—Dissolve sheet celluloid in ether, making a thick creamy paste. Coat the broken surface thickly and hold together for a few moments, then allowing it to harden not less than three minutes before handling.—[Dental Weekly.

CARE IN TRIMMING AMALGAM FILLING.—With amalgam the greatest care should be exercised in shaping the proximal surface of the filling, and especially in trimming away all surplus amalgam from the interproximal space while the amalgam is plastic. If an excess of the material be allowed to extend over the cervical margin of the cavity till it becomes hard the operator will experience great difficulty in its removal, and the gum tissue will never remain healthy

in a space partially filled with nodules of amalgam. All fillings at this point should be finished flush with the margin, and be made as smooth as the best skill will permit.—C. N. Johnson, Dental Review.

FOR BLEEDING GUMS.—After the extraction of teeth Vian recommends the following as an efficient styptic to check the bleeding:

R. Chloriformi.....oz i.
 Acid tannic, } aa.....oz ss.
 Menthol, }
 Tinct. krameriae.....oz i.
 Aquæ dist.....q. s. ad. O j.

—[Dental Practitioner and Advertiser.

College Notes.

THE trustees of the Tacoma College of Dental Surgery announce that with the close of the session of 1897-8 it was decided to place the management of the college entirely in the hands of dentists, believing that such a course would strengthen the cause for which the faculty—both dental and medical—had labored. Dr. A. R. Baker, formerly secretary of the Board of Dental Examiners, Victoria, B. C., has become permanently associated with the faculty, filling the chair of prosthetic dentistry. J. M. Meyer, D.D.S., P. H. O'Connor, D.M.D., A. R. Baker, D.D.S., now constitute the board of directors.

THE prospectus of the second annual session of the College of Dentistry, University of Southern California, Los Angeles, announces that the school term begins on third Wednesday in October, 1898, continuing until the third Wednesday in June, 1899. The faculty and staff of instructors and demonstrators embrace the names of men thoroughly experienced in their profession, and well-known as lecturers and teachers. Dr. Edgar Palmer is dean, and Dr. Francis M. Parker is secretary of the dental department. The college occupies a new and commodious building, and possesses all the latest facilities for the study of dentistry.

Laughing Gas.

AN ASEPTIC EXECUTION.—Governor of the Prison: What is the cause of this unseemly delay?

Jailer: That expert headsman you engaged from the medical school is sterilizing the axe.—[Brooklyn Life.

MRS. MARGARET R., of New York, had her leg amputated the other day, and insisted upon its having a Christian burial in her family lot in Calvary cemetery. A death certificate was made out by the doctor, setting forth that the leg had died by amputation at the Chambers street Hospital, November 29th, that it was fifty years old, married, and part mother of a family. The leg was buried with all due ceremony.—[Max O'Rell.

News Miscellany.

STATISTICS OF LIFE insurance companies show that in the last twenty-five years the average of woman's life has increased from about forty-two to fifty-six years, or more than eight per cent. In the same period, man's life on the average has increased in length five per cent.—[Modern Medical Science.

MODERN LONGEVITY.—In the seventeenth century the average duration of life was only thirteen years; in the eighteenth, twenty; in the present century it is thirty-six. This great increase in the average length of human life is not, however, an indication of an increase in the vigor and vitality of the race, but it is rather due to the fact that cholera, the black plague and other devastating scourges which formerly overspread whole countries at frequent intervals, sometimes several times during a century, have been brought more and more under control by improved public sanitation and quarantine. The real test of the vitality of the race is not the average length of human life, but the proportion of centenarians. The proportion of persons who have attained great age is without doubt at the present time much less than ever before in the history of the world.—[Mod. Medicine.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

SHALL THE GRADUATE DENTIST PRESCRIBE?

ELSEWHERE in this issue of the GAZETTE is published an article by Dr. G. W. Chase, of Philadelphia, which contains some timely suggestions for those who have under consideration proposed changes in our State dental law. That the exact status of the degree D.D.S., and of the right to practice granted by a license from the State Board, should be properly and clearly defined, particularly in so far as the right to prescribe medicine is concerned, seems to us should be one of the essential features of the proposed new law.

There are pharmacists in San Francisco who have refused to fill a dentist's prescription, insisting that it must be written and signed by a regularly qualified physician, thereby causing considerable inconvenience and delay, and lessening greatly the patient's respect for his dentist and the dental profession in general. The pharmacist may have been perfectly justified under the present law, but such occurrences are both unpleasant and, we believe, also very unjust; therefore, we ask a careful consideration of Dr. Chase's excellent paper by those interested, and that such definitions be given in our law as will abate such occurrences and give our profession an increased dignity and more secure professional standing.

DENTISTRY IN THE ARMY AND NAVY.

WHILE various attempts have been made throughout the United States to impress upon Congress the necessity for enacting such legislation as would provide for our army an efficient corps of dental surgeons, it has remained for a graduate of the dental department of the University of California to bring this issue to a practical and successful

result, at least in so far as our forces now at the Philippines are concerned.

We note with pleasure the fact that Dr. Wm. H. Ware has, with two assistants, Drs. G. F. Ames and J. A. Gibbon, been appointed to serve with General Merritt's army.

To Dr. Ware belongs the credit of having inaugurated the service here, and we earnestly hope this example may be followed at an early date, and that each division of our military service may be given the benefit of skilled dental attendance.

It is of prime importance in considering the physical welfare of man that his teeth should be in such condition as to properly perform the functions for which nature designed them, and we believe it is not carrying this idea too far to say that the efficiency of our army, depending as it does almost entirely upon the physical vigor of its members, depends in turn upon the possession of serviceable and comfortable teeth. That those in authority now recognize this and are turning to the profession for relief is indeed a fact upon which we think we may happily congratulate all dental practitioners.

"OUT TO MAKE MONEY."

To THE practitioner, with a slow-growing clientele, who despairingly wonders how some men with a tithe of his knowledge and skill gain "fame" and dollars during their short but meteoric flight which inevitably lands them against the wall of public distrust, where they lie a crushed and decaying mass of failure until Time has wafted their professional remains into the oblivion of another occupation, or the crematory, the following example of the various methods of the dentist with professional energy, ycleped "push," may afford the consolation that "all is not gold that glitters." A subscriber-correspondent, into whose possession this "professional announcement" fell, thought it too valuable to be lost to the business world, sent it to the GAZETTE, and it is given verbatim et literatim:

S. F., CAL., Saturday, October 24, 189-.

Proprietor of C— Hotel, Coulterville, Cal.

DEAR SIR,—Kindly post these bills as soon as possible, putting (tacking or sticking) a couple of them in the postoffice, and inside the win-

dows of the principal stores, and also on fences and around the mills (and mines) high enough so that the kids can't tear them down. I hope that you will do so without the least possible delay and oblige Dr. W—. If your terms are reasonable I can stay longer than if they were high. If your terms are satisfactory and you can throw business in my way I shall stay longer than I otherwise would.

Don't treat me like a stranger when I arrive in town, but brace up to me before everybody and say why how do you do Dr. W—. I shall drive into town with a single rig and top buggy maybe a day or two before I am billed to appear, and you will know me because I wear a fine dark moustache with no beard goatee or side chops. Make everybody think that you knew me for a long time. I do all branches of dentistry, and tell them I am the finest dentist that personal friends of yours had work done by me in the city. I am 23 years old.

Tell the folks that I not only put in gold fillings and make plates, but that I make gold crowns or caps to fit over decayed roots, and also gold bridge work, and that in the city I transplant and replant teeth and put in *diamond* fillings and am thoroughly up in all the latest methods in dentistry.

I am out to make money and not for my health, and am not what is known as an easy thing or a rich guy to be made money out of. I warrant my work for *three years* (and as I intend taking a vacation from my practice in this city every year I shall spend it in your locality taking in your town first and then proceed to one or two other mining towns.) so that if any of my fillings should fall out (which they never have done yet) I will refill the cavities without extra charge.

I also put in *platinum* fillings with redistilled mercury they being an improvement on the old style silver or amalgam fillings.

DR. W—, S. F., Cal.

BOOK REVIEW.

A TEXT-BOOK OF DENTAL PATHOLOGY, THERAPEUTICS, INCLUDING PHARMACOLOGY: being a treatise on the Principles and Practice of Dental Medicine. For Students and Practitioners. By Henry H. Burchard, M.D., D.D.S., special lecturer on Dental Pathology and Therapeutics in the Philadelphia Dental College. In one very handsome octavo volume of 575 pages, with 388 engravings and two colored plates. Cloth, \$5.00; leather, \$6.00; *net*. Lea Brothers & Co., Publishers, Philadelphia and New York.

In this volume of 575 pages there is given to the profession the third volume of the series of American Text-Books of Dentistry, Essig's Prosthetic Dentistry and Kirk's Operative Dentistry being first and second. In this work Dr. Burchard has shown excellent judgment in the classification and arrangement of the subjects under consideration.

The growth of study in dental pathology has developed so rapidly under the influence of the scientific investigations of the last few years that of necessity an almost entirely new exposition of the subject is demanded by the students of the day, and we believe that in this work Dr. Burchard has given us a fair résumé of the opinions of the leading pathologists of the present time. The author states

in his preface that he has endeavored "to formulate from data obtained from every available source a system of dental pathology and therapeutics of which the several parts shall be in harmony with one another, and also with the collateral sciences involved." That he has succeeded not only in doing so but has so presented his subject as to make the study of dental pathology and its kindred subjects of pharmacology and therapeutics an easier and more rational task than heretofore, seems true beyond a doubt, and we bespeak for this work as favorable a reception as has already been given its fellows in the series mentioned.

A COMPEND OF DENTAL PATHOLOGY AND DENTAL MEDICINE. By Geo. W. Warren, A.M., D.D.S. Third edition; illustrated. Philadelphia: P. Blakiston, Son & Co., 1898. Price, 80c. net.

In Quiz Compend of Dental Pathology and Dental Medicine, we have given to the profession a third edition of a work containing in small space a large and very conveniently arranged mass of general information, useful alike to student and practitioner. That such works are often abused by lazy students is undeniable; and it is also a fact that if properly used they but lead to the more thorough study of the subjects treated. Dr. Warren has arranged and classified the subject-matter very carefully, and in the appendix has given a fund of general information for use in emergencies that will meet with general appreciation. We commend the work to the consideration of the profession.

NOTES.

THE California State Board of Dental Examiners held its annual meeting for the examination of applicants for State certificates on Tuesday, August 9th. Twenty-one applicants were examined, the following being successful:

M. H. Cothran, C. W. Dewlany, G. W. W. Roche, J. E. Childs, H. C. Gleason, E. R. Tait, L. E. Graham, W. S. Parker, H. G. Hewitt, E. C. Bostwick, J. W. Hamilton, J. H. Thurston, L. Barrington, F. A. Binney.

G. S. Backman was elected president, and W. A. Moore secretary of the Board.

A LIST of applicants for positions, offices for sale, etc., in city and country, in addition to those advertised, can be seen at Jas. W. Edwards' dental depot.

PERSONAL.

DR. WM. J. YOUNGER, of Chicago, is spending a few weeks in the city.

DR. J. HAMILTON THURSTON, of Los Angeles, is spending his vacation in San Francisco.

DR. G. E. DANIELS has returned from Chicago, where he took a post-graduate course under Prof. G. V. Black.

DR. LOUIS OTTOFY, the eminent dentist of Chicago, has located in Yokohama, Japan, where he will practice his profession.

DR. B. B. CORY, of Fresno, has been spending several weeks at Lake Tahoe, and returns to his labors with brighter eyes and steadier nerves.

DR. W. F. LEWIS of Oakland, Dr. J. L. Asay of San Jose and Dr. Thos. Morfiew of this city, will attend the meeting of the National Dental Association at Omaha.

DR. F. N. ROSE, a seeker of fortune in the Alaska gold fields, is reported to have lost his golden treasure representing a year's hard work, amounting to about \$4000, by the upsetting of his boat while coming down the Yukon.

DR. M. F. BISHOP, of Alameda, Cal., recently received the attention of an unwelcome visitor, who appropriated thirteen forceps, two automatic pluggers and points, a large stock of artificial teeth, one box of pink dental rubber, one box of Samson rubber and an American Text Book of Operative Dentistry.

THE inclination of the profession to what we frequently see called "sporting proclivities" is evidenced in the manner most of them are spending their vacations.

DR. H. T. Hendricks, of Hanford, Cal., is hunting bear near the headwaters of the McCloud river.

DRS. W. H. Halsey, of Oakland and F. E. Sawyer of San Rafael are back from a two weeks' hunt in the vicinity of San Hedron Mountain.

DR. J. W. Key has just returned from Mendocino county,

with four fine pair of deer horns. We are not familiar with the price of horns in Mendocino.

Dr. C. A. Litton, the popular superintendent of the infirmary of the U. of C. College of Dentistry, spent his vacation in Round Valley. The Doctor tells some big deer stories.

DR. FRANK L. PLATT, accompanied by his wife, his medico friend, Dr. Clement, two shotguns (one of which Mrs. Platt handles with the skill of a modern Diana), a Cocker spaniel, several large bottles of "fret anesthetic" and "worry obtundent," took to the woods of Mendocino county on the 3d inst. The Doctor intends to devote three weeks to recovery from brain-fag.

OBITUARY.



CHARLES EDWARD BLAKE.

DIED, at his residence in San Francisco, July 30, 1898, Dr. Charles Edward Blake, in his 75th year.

Dr. Blake was born November 21, 1823, on an old-fashioned farm in the outskirts of the small town of Wrentham, forty miles from Boston, in the same house where his father had first seen the light of day. He received his early education during the winters in the little district school near his home. At the age of sixteen he was apprenticed to his uncle, Mr. Ebenezer Blake, an established dentist in New York, and at

that time a recognized authority in the new profession of dentistry. At the age of twenty-two he moved to the State of Louisiana, practicing as an itinerant dentist in the small towns along the Mississippi river, finally locating in New Orleans, where he became associated with Dr. Brocklebank of that city.

The discovery of gold in California hastened him to the shores of the Golden State. He journeyed by way of Chagres river, Panama, landing at Meigs' wharf, January 10, 1850. No modern office buildings being then available in primitive San Francisco, he practiced dentistry wherever he could place a patient and open his "kit of tools," in many instances on board vessels at anchor in the harbor, or in tents occupying the site of the old City Hall and Portsmouth Square.

In the spring of the following year he drifted to the gold fields of Tuolumne county, and tried for fortune with pick and shovel; but "once a dentist always a dentist," and his skill and energy soon compelled him to open a fully equipped dental office in Sonora, Cal. In 1858 he located permanently in San Francisco, and practiced until 1896.

About 1858, in conjunction with John Furley, a gold beater, Dr. Blake discovered the process of annealing soft cohesive gold foil for filling teeth, and perfected the method of inserting contour and restoration gold fillings. This style of work was then performed exclusively by hand-pressure, without the aid of rubber-dam, mechanical mallets or engines. The advent of rubber-dam, invented by Dr. Barnum, suggested to him the rubber-dam clamps, for which he obtained letters patent in April, 1873. The styles, of which there were many, have never been improved upon. He next turned his inventive genius to the large, unsightly restoration gold fillings in vogue, and was soon in possession of several patents for electro-gold plating on platinum, for coloring or disguising such fillings. About the same time, returning from a trip to the Eastern States, he introduced in San Francisco the first electric plugger. He received in 1886 letters patent for porcelain enamel platinum jacket crowns. His inventive powers were not expended entirely for his profession; the automatic relief valve, now in use on all fire engines, was invented and patented by him in 1867, and also many others.

His declining years brought forth the masterpiece of his inventions, and as late as the year 1893 he took out eleven patents for forceps for extracting teeth. His mechanical ability being recognized by the directors of the Columbian World's Fair, in Chicago, he was appointed a juror in the department of fine arts.

Genius is a hard master, and Dr. Blake made many sacrifices and endured many privations in the interests of his profession. Advancing years and failing health found him still happiest working, studying and experimenting in his laboratory.

Dr. Blake's office was the school of many of our local dentists, they having received their first instruction as students with him. A patient and genial man, he was ever ready and willing to give the younger men in his profession the benefit of his years of study and experience.

Pacific Medico-Dental Gazette

VOL. VI. SAN FRANCISCO, SEPTEMBER, 1898. No. 9.

Original Papers.

NASO-PHARYNGEAL OBSTRUCTIONS.

BY H. D. NOBLE, D.D.S., SAN FRANCISCO, CAL.

[Read before the San Francisco Dental Association, June 13, 1898.]

NOT that I have had an extensive experience, or that I can claim or disclose any originality on my subject, have I chosen it for an essay. My attention has been called to it in so many different ways that I have become very much interested in it, and concluded that were I ever called upon by this society for a paper I should choose it for a subject, relying upon what information I could glean from medical books, journals, etc., and from my accommodating next door neighbor, Dr. James A. Black, a specialist in disease of the eye, ear, nose, etc., and who has called me in on numerous occasions to witness the operations of removing tonsils, adenoids, polypi, etc. I have also made casts of mouths of patients to study the effect of removal of growths from the naso-pharyngeal cavity.

My attention was also called to this subject by a paper read before the California State Teachers' Association, calling attention to the physical condition of children, and especially to their eyes, and I of course laid special stress upon the condition of their teeth. But we must not stop here with our advice and investigation.

In order that people may reap the greatest benefits and enjoy the greatest amount of happiness in this world they must first of all be in perfect health, or as near as possible to that condition. What child with weak eyes, a mouth

NOTE.—The editor and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

full of bad teeth, his nose stopped up with all kinds of growths, can go into the schoolroom and do justice to his studies and his recitations? or go out and enjoy and participate in the games that school children indulge in? Ofttimes a child is reproached and sometimes severely punished for a seeming lack of interest in his studies, especially when confined in a close schoolroom. Who is to blame for this? Is it the child's fault if there is not plenty of fresh air in the room? And if there is, and his breathing apparatus is not in proper condition to inhale it, it will do him very little good. When you see a child without any ambition, mouth open, expressionless and almost motionless, it is time an investigation was made.

Let us consider the anatomy and physiological function of the nose, then we can more readily appreciate the method of treatment necessary.

I have found a very interesting article in the September, 1897, number of the *International Dental Journal*, by G. L. Richards, M.D., and shall follow to some extent his work in this line.

Anatomically the nose is the beginning of the upper air tract, and the organ of special sense of smell; it also aids in beautifying the features of some people and in the disfigurement of others; is generally located in the median line of the face, and is composed of bone, cartilage, blood-vessels, glands, nerves, etc., and essentially possesses two cavities. These are divided by a septum of cartilage and bone, which is covered with mucous membrane, that is a continuous lining of the antrum, lachrymal canal, larynx, pharynx, eustachian tube, mastoid cells and trachea. The vomer is extended vertically at the back part of the nasal fossa, forming part of the septum of the nose, and to which is attached the cartilage of the septum. The margins of the orifices are provided with stiff hairs to prevent the passage of foreign substances, which are carried in with the current of air to the lungs. The bony framework occupies the upper part of the organ, and consists of the nasal bones and the nasal processes of the superior maxilla.

The nose is so constructed as to present a vast amount of surface over which the air passes in its ingress and egress to and from the lungs, having the desired effect of moistening and tempering it to a proper degree. Opening into the nose are the outlets of a number of accessory cavities, viz., the antrum, frontal sinus, anterior ethmoidal cells, posterior ethmoidal cells and sphenoidal cells.

The antrum, the largest of these cavities, is situated in each of the superior maxilla. Its opening into the nose is partially closed by the inferior turbinated bone, together with the *processus uncinatus* of the ethmoid bones. The mucous membrane lining the antrum, being continuous with that of the nose and other accessory cavities, we can readily understand why inflammation or disease in any one part is so easily communicated to any or all of the organs of special sense.

There are so many ways in which inflammation may be produced that I will only call your attention to a few of the most important and the ones bearing most upon this subject.

We will first consider the tonsils. These lie between the two palatine arches, and normally project a little beyond the anterior arch. They contain many *lacunæ*, which act as sources of trouble in affections of this organ. Their location and formation are very favorable for the lodgment of irritating substances, and when swollen, or are hypertrophied, they very easily obstruct the nasal passage to such an extent as to render breathing through the nose next to impossible. Their blood supply consists of several small arterial branches, viz., the *dorsalis lingual*, the ascending palatine and the tonsillar from the facial, the pharyngeal and descending palatine from the internal maxillary artery. As the tonsils are some little distance from the larger blood vessels, they can be readily removed without much danger of injury to the vessels or of severe hemorrhage.

Among the pathological symptoms which accompany mouth-breathing are bronchitis, due to impure, too dry and

insufficiently warmed air. Pharyngitis, laryngitis, cough, sore throat and hoarseness interfere with the formation of the nasal tones. Singers especially have to be very careful about having the nasal passage perfectly free and clear of all obstructions. Dry mouth, coated tongue and other digestive disturbance are due to mouth-breathing.

Open mouth, noisy respiration, snoring while asleep, are also characteristics. A peculiar facial aspect in the region of the ala of nose gives a pinched expression; abnormalities of secretion; loss of sense of smell, dulness of intellect, inflamed eyelids, excessive flow from lachrymal glands, headaches, etc., are also among the results of mouth-breathing.

There is a great variety of diseases of the nose that may have influence in producing mouth-breathing. Influenza, of which there are two types: one being an uncomplicated catarrhal condition of the respiratory tract, generally caused by changes of weather; the other is of an epidemic nature, and is known under several names, viz., grippe, epidemic catarrh, and epizootic. The treatment for the more severe type is generally sufficient for either. Nasal polypi are of three forms, viz., mucous, fibrous and cystic. Mucous polypi are pale pink in color, and are troublesome in damp weather, when they absorb moisture, causing them to swell and occupy increased spaces. They are usually found in middle life, and generally cause mouth-breathing, but it is doubtful if they can produce any deformity in the palatine arch at that age.

Fibrous polypi present a single dense resisting surface to the probe, and sometimes develop into so large a mass as to invade the naso-pharynx, or project from the nostril. This condition causes stenosis and supra-orbital headache, and its expansion causes deflection of the septum, as well as absorption of the turbinated bones.

Cystic polypi are very rare, and consist of a cyst or sack filled with a yellowish serous fluid. Polypi are generally removed by use of a snare, the wound afterwards being cauterized.

Naso-pharyngeal inflammation may be acute or chronic, and generally leaves a thickening of the mucous membrane, leaving a roughened, granular appearance and increased secretion from the mucous glands.

The chief exciting causes are sudden changes in a low, damp location and inhaled dust.

Fibrous polypi of the naso-pharynx are infrequent in occurrence, are generally found under the twenty-fifth year, and are more common in men than in women. They cause obstruction to the nasal respiration; are generally attached to the roof of the pharynx; are dark red in color and sometimes develop to such an extent as to invade the throat to a level with the epiglottis. They sometimes cause diseases of the middle ear and deafness. They pursue a steady growth, and in from three to five years prove fatal. If their development can be suppressed until the patient is twenty-five, the prospects of recovery are fair.

Fibro-mucous polypi and malignant tumors also assist in producing mouth-breathing.

Adenoid growths, or hypertrophy of the pharyngeal tonsil, generally occur in children under ten years of age. They are found in two varieties. The first consist of spongy, stalactite projections from the vault of the pharynx. The second are smooth, fibrous tumors of irregular shape. They are very vascular and contain lymph-cells and are of a follicular structure resembling that of the oral tonsil.

Adenoid growth may be inherited, and may be looked for in children with hypertrophic rhinitis and enlarged faucial tonsils. Children so affected are generally mouth-breathers. The most striking features in a pronounced type of this affection are parted lips, prominent eyeballs, mouth-breathing, a noisy respiration, snoring, etc. Such children are absent-minded and inattentive, which may be due to either mental dullness or impaired hearing. There is a plentiful discharge of bloody or grayish matter. Bleeding is caused by the slightest touch. Patients often complain of headache, earache, noises in the ears or otorhea. There may be pressure of the adenoid growth on the eustachian

tube. The general treatment is to remove the growths with a Gottstein ring-curette, followed by the cautery, sprays, etc.

Thus we can readily understand how deformities of the mouth and facial expression may be caused by growths in the naso-pharyngeal cavity. But mouth-breathing does not often produce the deformity commonly known as saddle-shaped arch.

A CASE OF FRACTURE OF BOTH SUPERIOR MAXILLARY BONES.

BY ALFRED E. BLAKE, M.D., D.D.S., SAN FRANCISCO, CAL.

THE patient, Mr. B. B., aged 42 years, residing in the country, was kicked in the face by a vicious stallion, inflicting an incised wound of right ala of nose, an incised

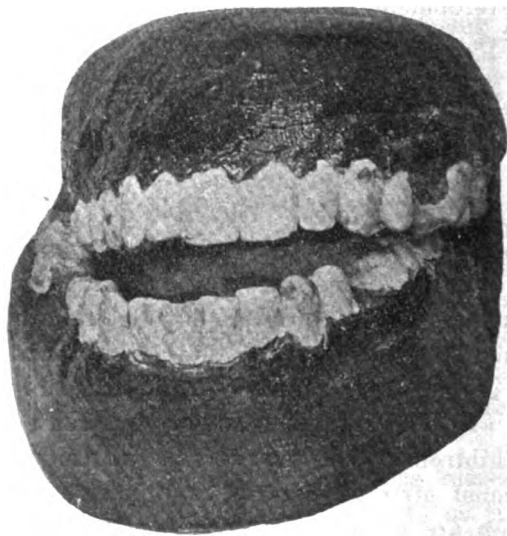


FIG. 1.—Before treatment.

wound of left side of upper lip, fracturing both nasal bones and septum nasi; also fracturing superior maxillary bones. He was immediately attended by a local surgeon, who treated wounds, removing portions of nasal and turbinated bones, and arresting hemorrhage, which was severe. Attempts at reducing fracture and displaced upper jaw being

unsuccessful, the patient was removed to the German Hospital of San Francisco. I was called into consultation by the late Dr. John F. Morse, chief surgeon of the hospital, four days after the injury was received. Examination revealed a compound multiple fracture of both superior maxillary bones at the junction of palate, nasal and malar processes, with displacement upwards one-half inch into the nasal fossa, and to the left of the median line, driving the palate bones backwards into the oro-pharyngeal space, permitting luxation of the bones in mass as per model. Con-

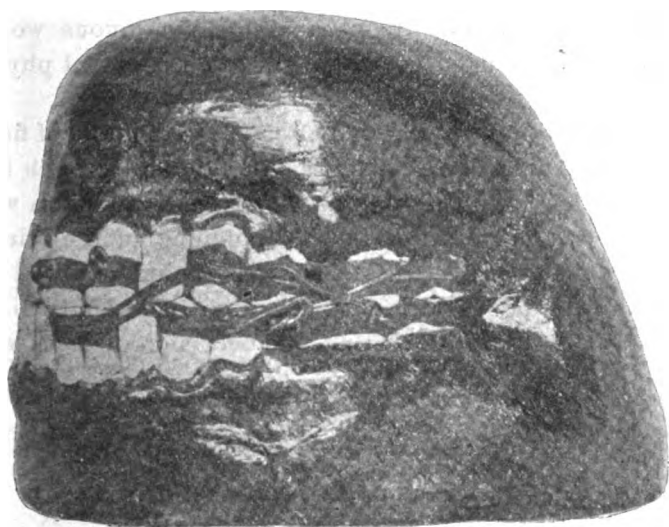


FIG. 2.—After treatment.

tiguous soft parts swollen and edematous, difficult deglutition, excessive secretion of saliva and a muco-sanguineous discharge from the nose. Teeth were covered with tartar, and gums hypertrophied. No teeth were fractured or displaced, several having been extracted years previous.

Treatment.—The teeth were cleansed as well as possible, and a modification of Angle's system of banding teeth was made, and bands cemented to the upper and lower teeth in sets of twos soldered together, as per model. (Fig. 2.) Soft silver wire was interlaced from upper to

lower eyelets, the upper jaw was then forced into line, tightening the wire by twisting with pliers, thus articulating teeth to place.

Owing to the weak condition of the patient I was compelled to operate entirely at the hospital, away from my accustomed light and general surroundings. It was a painful and tedious task to separate the teeth for the bands, as I found it necessary to do, continually steadying the jaws and holding them in the median line, to allow the diamond disks to pass simultaneously through upper and lower interdental spaces. The making, adjusting and cementing of twenty bands consumed eight hours of continuous work, although ably assisted by Dr. H. Stirewalt, resident physician of the hospital.

The patient suffered no pain after the fourth day of fixation of jaws, and managed to draw liquid food through the spaces of lost teeth fairly well. Particular attention was given to oral disinfection and re-tightening of the wires. Recovery uneventful, wires and bands being removed on the sixteenth day. With the exception of several points of cusps necessitating grinding, the occlusion of teeth was perfect.

ARREST OF DEVELOPMENT.

BY H. L. M'KELLOPS, M.D., D.D.S., SAN FRANCISCO, CAL.

THE patient, a lad of eight years, was brought to the infirmary of the Dental Department of College of Physicians and Surgeons to have the palatal root of the right superior first temporary molar extracted, his mother stating that he had been suffering with toothache.

Upon examination I found all the other teeth in the mouth perfect, but noticed what I supposed was a supernumerary growth, as only the buccal cusp of what afterwards proved to be a bicuspid was exposed.

Having come to the conclusion that it was a supernumerary growth, from the chalky appearance and the looseness, thinking that if it was the permanent bicuspid it

would be firm, I took an impression in wax (intending to preserve the supernumerary tooth as a curiosity) in a model after extraction, and am, therefore, thus able to present the accompanying cut of the impression, with the tooth in position, showing an interesting case of arrest of development.

The pulp had been protected in the pulp-chamber, as the cut shows the formation of the pulp-canals perfectly at the point where the arrest of development of the root took



ARREST OF DEVELOPMENT OF BICUSPID.

place, and I can only account for the toothache experienced by the pulp not having any further protection than the gum tissues after the tooth having been erupted to the extent it was when the case presented itself; or, in other words, the pulp was formed, but without root to protect it.

A CASE OF HEMORRHAGIC DIATHESIS.

BY J. C. HENNESSEY, CARBON, NEV.

P**A****T****I****E****N****T** was a girl, nearly 17 years of age; very delicate and anemic from childhood; had never menstruated, and had dropsical condition about abdomen and adjacent parts. She called with her mother accompanied by physician, to have upper molar extracted. After an examination, which revealed a badly broken-down condition of all the teeth, I refused to extract the tooth pointed out, as it was no worse than the others. However, I could not convince patient or her mother that it would not afford relief to take out that particular member, and as her physician was present and all seemed so insistent in having it out, I finally

consented. I extracted the tooth without any trouble, and without lacerating the gums, and dismissed the patient. At midnight I was called to arrest the hemorrhage. With the usual styptic I was successful in causing coagulation, but was again sent for the next day at noon. I was sent for off and on for three days, and always succeeded in stopping the flow, but secondary hemorrhage occurred each time. The patient had catarrh so bad that she could not breathe through the nose. On the third day her physician became very anxious, as all efforts had failed to effect a permanent cure. By this time the patient was very weak, and could barely articulate words. Another examination was made and it was found that the blood was oozing from the margin of the gums around all the teeth. I took a bite, as it were, in modeling compound, and cut an orifice for breathing, placed cotton saturated with Monsal's salts carefully laid around the entire upper surface, bound a cloth around her head very light, and the modeling compound from the heat of the mouth allowed a perfect adaptation of the cotton to the entire upper surface. The patient was fed on milk for three days. The bleeding seemed to help her, and after getting up she was very much improved.

REPORT ON DENTAL PATHOLOGY AND SURGERY.

BY J. L. ASAY, M.D., SAN JOSE, CAL.

[Read before the California State Dental Association, June 22, 1908.]

A REVIEW of the science of dental pathology and surgery will reveal but few, if any, changes in principles and practice since the last meeting of this Association two years ago. Yet it is a demonstrated fact that the literature of these special branches of medicine and surgery has become not only augmented and replete with illustrations of a higher order of merit than usual, but by their simplicity and method of instruction impart a knowledge of modern discoveries and ideas; thus suggesting a careful and honest endeavor, together with patient study, to clear up and make plain the etiology of those diseases, the ideas of which

have been held in abeyance waiting for the sunlight of science to develop their truth or error.

Special reference, therefore, may with propriety be made to the work issued from the press in 1896, entitled "Surgery by American Authors," edited by Roswell Park, M.D., of the University of Buffalo, the first volume of which is devoted in a great measure to those diseases and injuries which come under the province of the stomatologist, besides the morbid anatomy of dental caries.

Another and the latest work to which I would refer, has but a few weeks since been placed before the profession by that most competent scientist and writer, Henry H. Burchard, M.D., D.D.S., of the Philadelphia Dental College, entitled "A Text-Book on Dental Pathology, Therapeutics and Pharmacology," from which quotations will be made as this report progresses.

I desire, however, to take the present occasion to say that the subject of inflammation, as treated in the "Surgery" of Dr. Park, cannot be read without a vivid impression being conveyed to one's mind of the causes and nature of the affection, and the changes which tissues undergo and the factors inducing them from the initial stage of hyperemia to the finality of gangrene.

These preliminary remarks bring us to the first step in pathology, the cause of disease, and this cause, as we now recognize it, is an irritant—some enemy having found ingress to a localized territory or into the general system.

In the daily routine of practice how little do we reflect upon this important truth, even though we have not failed to recognize it; but without tarrying to inquire of ourselves what this irritant may be, whether it be the micro-organisms of fevers or constitutional disease—the numerous but distinct bacilli of the mouth, each probably carrying its especial torch for incendiary work in healthy tissue, or some other undetermined force emanating from similar undefined bacteria—we are too prone to accept as tangible only that which the unaided vision sees, and simply devote

our talents to an empirical method of cure, which in many diseases fails as often as it relieves.

The whole field of pathology is now overspread with bacteria, having been ploughed, sowed and harrowed into the soil from which they germinate, and reaching maturity select their territory of invasion.

The thorn in the flesh is but a localized irritant, and the repair of the tissues is almost simultaneous with the early removal of this offender; but let the wound invite the entrance of pathogenic germs and a series of complex minutiae occur by which the morbid influence of these microorganisms produces a degeneration and breaking down of tissue, to be opposed if not held in check by the phagacytosis, which often anticipates our bidding.

There is no disease of the mouth or dentinal tissues which either cannot at present, or in the future will be traced to this condition of irritation, either local or general. Hence, it appears conclusive that in all forms of pyorrhea alveolaris we have one or more colonies of bacteria at work, multiplying themselves often more rapidly than our germicides can destroy, each producing in its own special way its impairment of tissue by either forming or influencing the formation of calcic nodules, or the breaking down and disintegration of the soft tissues, as represented by the pericementum and gum tissue or the osseous structures of the alveolar walls.

It is true that so far all attempts to isolate and discover the true bacteria of this form of pericementitis have failed. Miller, Galippe and Malassez, all eminent microscopists, have been unable to separate them from their associates so as to distinguish them as the specific bacteria capable of this form of infection. Hence, what particular bacteria is the cause of any one form of pyorrhea alveolaris, or all of them, must be for awhile longer shrouded in uncertainty. But it cannot thus always remain a vexed or unsolved problem; neither can these germs much longer escape recognition under the searchlights of microscopy, while, for the

present, analogy teaches us to be content with the correctness of the theory that such bacteria must and do exist.

These premises must not be construed as asserting that no micro-organisms have been found to exist in any or every instance of this disease, for the most prominent symptom, as the name pyorrhea implies, is the increasing flow of pus, and pus formation cannot occur without the presence of the pyogenic staphylococci, or streptococci, which are always present in suppurative processes.

An effort has at last been made to classify the different forms of pyorrhea alveolaris, and this appears to be successfully accomplished, and is so much in accordance with the theories taught in the lectures on pathology in the educational institutions of this State that one possessing any State pride feels that it is justly entitled to congratulation.

So many diseases having as one symptom "a flow of pus from the tooth socket" have been jumbled together that the utmost confusion has heretofore existed. Of course, they all partake of the nature of purulent pericementitis; but, if we confine ourselves to the classification, as given by Dr. Burchard in his recent work, to which I have referred, we will find matters much simplified, besides being convincing. The following quotation from his work seems extremely applicable to the present instance:

"Leaving aside questions of direct and remote causation, the causes may be clinically divided into three classes:

"First.—Causes associated with and arising from a primary gingivitis, with the formation of hard, scaly, dark, annular calculi beneath the gum margin.

"Second.—Causes in which gingivitis may not be marked; the early deposits may be entirely absent, the necrosis of the pericementum advances in such a manner as to warrant the designation of black phagedenic pericementitis.

"Third.—Causes in which the degeneration and necrosis of the pericementum and deposits of calculi occur upon some lateral aspect of a tooth-root, the gum margin being apparently normal.

"The differentiation between these several diseases is important, because, while all these exhibit some features in common, they differ as to causes, clinical histories, prognosis and mode of treatment. In the first class, pericemental degeneration appears to be a secondary feature; in the second, the distinguishing feature; and in the third, degeneration and death of a circumscribed portion of the pericementum constitute the first evidence of the developed disease. They all agree in having the diseases of suboxidation as general predisposing causes of their occurrence, notable among which are the morbid conditions included under the head of the gouty diathesis; the last differs from the others in having a gouty condition as the probable exciting cause of the disease."

It will be seen that taking these three classes of pyorrhea, with their defined basic principles and morbid anatomy, we can at once arrive at an intelligent method of surgical interference and therapeusis.

There is, however, one form which should be included in the second class of this disease, differing little in its nature from it, which has even been passed by in the most trivial manner by teachers and writers: it is that degeneration of the pericementum which so often comes under observation on this coast, and by the process of exclusion leads one to believe it to be the result of nasal catarrh, either by contiguity of tissue, transposition of the infection, or the result of the same causes producing this form of chronic rhinitis.

From a number of clinical cases observed sufficient warrant exists for calling your attention to this infection as belonging to the etiology of pyorrhea. It, perhaps, may be but a coincidence that this form of phagedenic pericementitis exists in connection with nasal catarrh, and arises from no other ascertainable cause; without history of arthritic or rheumatic predisposition in parents or grandparents, whereby consideration of such diathesis seems to be eliminated, with no calcic nodules or disposition whatever in the earlier stages of the disease, if at all, and with an entire

absence of every other predisposing cause of systemic debility. As an instance, an entire family of five persons—parents and three children, ranging from twelve to eighteen years of age—residing in Santa Clara county was so affected, one case being particularly more aggravated than the rest, in which the disease involved every tooth in the superior arch, on the roots of which not a particle of calculus was discernible. On the right side from and including the first bicuspid and second molar the alveolar walls had melted away, and a blunt instrument could be passed up almost to the apex of each buccal root without meeting any obstruction, through a profuse discharge of pus. May it not, therefore, be suggested in this case that through consanguinity, family endearments, intermingling and exchange of domestic utensils in eating, drinking, and use of the same linen, the primary infection has thus been transmitted from one member of the family to another, and that the original and remote cause arose from the acrid secretions and pathogenic organisms of this intractable disease of the mucous membrane, presumably from parent to child? Certainly it appears from a large number of clinical observations both in private practice and the infirmary, in the present life, no other explanation can be afforded than a secondary pyogenic infection, because of the lowered vitality of contiguous tissue, over which the poisonous fluids from the nares, if they do not necessarily pass, are liable to and frequently do find their way and lodge on the buccal surfaces.

DENTAL CARIES.

So much has been written *ex-cathedra* in the past two years upon the pathology and morbid anatomy of dental caries that any concise review would be imposing upon your patience and good nature; nevertheless, it can with propriety be said here that parasitic influence is now the universally admitted cause of this affection. In fact, all that seems to be necessary for a colonization of dentine-devouring bacteria is a sufficient breaking down of the

enamel covering or the formation of the pit or sulcus for these organisms to secure a lodgment.

From the researches of Miller and J. Leon Williams there no longer exists any doubt that the bacteria of caries enter the dental tubuli and frequently penetrate beyond the carious territory in their course, overcrowding and bulging the canals they occupy, producing a thickening or hypertrophy of the sheaths of Neumann.

There is, however, one point on which there is still considerable diversity of opinion, and this is in reference to one of the predisposing causes of caries, many contending that lactic acid is responsible for the disintegration of the enamel as the first step of decalcification. That the lactic acid is formed by the decomposition of food in the mouth, assisted by the action of micrococci and leptothrix, and that the tooth itself, as it progresses through its carious degeneration, plays an important part in increasing the free lactic acid surrounding it.

Does it not, however, seem to be equally true that whatever acids will dissolve lime salts outside the mouth, will do so with almost the same persistency within? The presence of all acids in the mouth is not necessarily the result of fermentation of food products.

We are often asked, "Why do the people of California have such poor teeth?" It is not because our food is deficient in dentine and bone-forming compounds; hence, may we not look for other predisposing causes and find them?

The character and nature of food varies, according to the climatic conditions. While it is true that meat and fats form the principal diet in colder latitudes, on account of their heat-producing qualities, and in fact are necessary in those conditions to support the animal temperature, yet in temperate regions the consumption of hydro-carbons is proportionately diminished, and in its stead an amylaceous and vegetable diet is supplied, accompanied by cooling acidulated drinks or the lighter wines. Of course, fermentation can change even this into free lactic acid.

California is well named "the land of sunshine, fruit

and flowers." Yet in the northern sections and high altitudes it possesses all the rigors of a New England winter for several months of the year. During this season the people live chiefly on animal food.

The reverse is true of the more central and southern portions of the State, from a little north of Sacramento on the one extreme, to as far south as San Diego on the other. In this territory we find a vast consumption of fruits of all kinds—the apple, pear, peach, apricot, nectarine and grape; while the most universally used are the orange, lemon and lime, which abound in citric acid.

In mouths which are kept perfectly free from débris, where food of any kind is denied lodgment between the teeth by the judicious use of the toothbrush and floss silk after meals, the acid condition will be to a great extent modified. But the eating of citrus fruits, or those containing malic or tartaric acid, is not confined to certain periods of the day, as in the case of meat-eaters at mealtime, but is frequent between such hours, and often just before retiring at night, in which event no precaution is taken to dilute the acid by washing out the mouth or neutralize the condition by correctives. Hence, free acids taken into the mouth and permitted to remain so that the teeth will continually be bathed in the acidulated fluids, will certainly sooner or later destroy the integrity of enamel, and thus prove to be the great predisposing cause of dental caries in California.

DISCUSSION.

Dr. S. E. Knowles.—I had the pleasure of reading the paper yesterday, but the author's reading has shown me more of its beauties than I first observed. The two principal subjects treated are tartar and caries. Of late there has been manifested a disposition amongst writers on tartar troubles to theorize and differentiate to a large degree. It reminded me of a lecture I listened to when I was reading medicine, a lecture upon the various forms of malignant cancer, the lines of demarcation drawn between the characteristics and the methods of diagnosis pointed out, but in

every case the remedy was the knife. It is much the same in regard to the treatment of tartar. Whether it be deposited from the blood, whether it be deposited from the saliva, or partly from each, the remedy is the scaler. All of the local trouble, in my opinion, is due to the presence of a foreign body on the shaft of the tooth. The remedy is its removal.

I am not one of the sanguine ones so far as the treatment of tartar trouble is concerned. The average case is not cured; from the nature of the injury the average case cannot be cured. Tartar is never deposited on pericemental membrane and pericemental membrane retain its vitality. Phagedenic pericementitis expresses very well the true nature of the trouble. The flow of pus means nothing; it conveys nothing at all to my mind; it merely names, perhaps, the most prominent symptoms, but as a distinctive name it expresses nothing at all. Phagedenic pericementitis does. Phagedenic carries with it the unhealthy form of inflammation. The tendency is always to break down. Of course, pericementitis refers to locality. Whether it is cured or not depends on how you define a cure. If a cure is a return to the original condition which involves the bringing back of parts which have been swept away it is not cured. The gum sloughs away and the bone disappears. Whether it absorbs or not I do not know. The pericemental membrane disappears also. We never can bring those parts back. That would involve the creation of something anew. You can cure a live part, but to cure a part that has no vitality is out of the question. Although I know some claim that these pockets are obliterated so that it is impossible with a small point to prove their presence. I am very skeptical in regard to its ever having been brought about by anyone. In cases of that kind where tissue losses have occurred, where the teeth are loose, the best that I expect is an alleviation of the most virulent symptoms. I expect a recurrence in almost all cases owing to continued deposit of tartar. We do not find tartar or the phosphate of lime deposited in other parts of the body and pus formation accompanying it. It is a very common thing to have it in the different tissues; any tissue

may take on this function of depositing lime—those deposits that are improperly spoken of as ossification in various parts of the body.

Now, we find that calcific deposits are found in other places. We never find calcific deposits upon healthy membrane. All these deposits have a nucleus of some material that is foreign. The differentiation of the various forms of calculus is comparatively unimportant, the remedy remains the same. In order to stop the trouble you have to remove the tartar. In almost all the cases where we have a return of the trouble the main cause is that we have not properly cleaned the shaft of the tooth. I have frequently had a case where I supposed I had cleaned it perfectly, yet afterwards it turned out imperfect, and I have extracted the tooth and found a deposit that must have been there for a very long time. You all know the difficulty under which we work. We have to depend almost entirely on the sense of touch.

Now, with regard to dental caries, I don't think it is material how the débris is removed. In speaking of the dentine I refer only to the live part, the part that dies; the lime which is infiltrated in the living matrix is a secondary matter. We dispose of a great deal of it every time we excavate a tooth. But in all of the various theories in regard to the cause of decay it seems to me sight is lost of the fact that it is the live part of the tooth, the cartilaginous part of the tooth, that it is the only part that is susceptible to disease. Lime locked up in a tooth can no more take on disease than lime locked up in marble; it is organic. In the dentine I think there is about one-third organic matter. That is the part, in my opinion, that is affected by disease.

Caries has been rightly spoken of as a retrograde metamorphosis—a return to the juvenile form. The tooth, as you know, consists of two parts. It is a difficult matter to demonstrate in a tooth because the organic part is so slight as compared with the inorganic part; but the condition may be demonstrated with a bone very readily indeed. Even as long ago as the time I was in school I have tried the experiment of placing the bone in muriatic acid. When the lime was dissolved out you have left a mass like leather. That

demonstrates the presence of cartilaginous matter. On the other hand, you take a similar bone and burn it, it becomes very brittle and the organic matter has been disposed of. Now, within the outline of every tooth we have practically two teeth; one is cartilaginous, is vital, capable of taking on disease; the other is solid, inorganic, can no more take on disease than a cobble-stone. That is, to my mind, the reason that there is so much confusion in regard to what dental caries is. The vital side is ignored.

Now, even the most earnest advocate of the dissolving theory of decay must admit that there is a reaction on the part of the live matter in the dentine. You know in cases where decay is sufficiently slow there is a provision made for protecting the pulp. Sometimes where decay begins at the neck of a tooth you will find a deposit of secondary dentine on the inside of the pulp-chamber at the corresponding point, and that will sometimes go on even to the extent of bridging across the pulp-chamber and removing vitality from the part in the crown. Certainly that shows that vitality is concerned either aggressively or defensively in caries. In a great many of the lower forms we find the matured tooth consists entirely of solid matter; so far as any cavity in the tooth is concerned, there is no pulp, no pulp-chamber.

REPORT ON DENTAL THERAPEUTICS.

BY DR. WALTER F. LEWIS, OAKLAND, CAL.

[Read before the California State Dental Association, June 22, 1898.]

THE value of therapeutical agents depends largely upon a knowledge of pathological conditions, measured by the intelligent application of a medicament in any given case. In the field of dental science the number of medicinal agents employed is necessarily limited as compared with the general practice of medicine and surgery, for the reason that the dentist is usually called upon to treat conditions that require local rather than systemic applications. In many instances, however, it is necessary to build up and restore to a normal condition the whole nervous system, or the circulatory system; for example, before any organ or

special tissue will yield to the treatment which is required to restore it to healthy harmony with the whole. Take, for instance, the inferior dental nerve, which is perhaps more often affected than any other branch of the nervous economy, it is important that the entire nervous system be normal in its functional activity before we can achieve much success with any specific part. It is, therefore, the dentist's function to be able to intelligently apply or use remedies which will enable him to restore health to diseased conditions of a particular part by preparing the entire system for such desired result.

It is clearly evident that in the realm of dental therapeutics the line of investigation and research will be toward a remedy or remedies which will arrest decay in the hard tissues, for it is a fact too patent to need argument that the stopping or filling of teeth does not arrest decay in those organs. Under favorable circumstances it may and doubtless does; but unfortunately we have to deal with conditions that are far from favorable—ever-recurring caries, which break down and destroy the tissue much faster than any purely mechanical means will arrest. It is often said if the gods would send us an ideal cement filling which would not disintegrate under the action of fluids of the mouth we would be supremely happy. But then we shall not have reached the goal, for, like a besom of destruction, the myriads of micro-organisms get in their deadly work and the tooth melts away like hoar frost touched by the rays of the sun.

Dr. George Allen says: "So far as the teeth are concerned, for reasons not necessary to mention, the main want seems to be to find a germicide that will either utterly destroy the germs of putrefaction and fermentation, together with the decomposing contents of the pulp-chamber and tubules of so-called dead teeth; or form with them some indestructible and inert compound, one that will not be a menace to the safety of the teeth afterwards. None of the organic germicides, such as carbolic acid, creasote, or any of the essential oils, will meet the conditions; most

of them are simply antiseptics, temporarily only inhibiting the growth of germs; very soon they become an additional source of danger, for in time they are acted upon by the germs and destroyed, and so add fuel, as it were, to the flames. A pledget of cotton soaked with any of the above-named agents and placed in the open cavity of a tooth in a few hours becomes offensive and exhibits all the characteristics of decomposition and destruction. Of all the agents employed that will act upon dead tissues, and form an indestructible compound, formaldehyde, I believe, is the most effective. I am uncertain though as to the duration of the compound that is formed—that is, whether it is indestructible by the agencies in the mouth for any great length of time.” This is by far the best putting upon the subject that we have seen, and therefore we have chosen to reproduce his words.

Of all the remedies that have come to the notice of the dental profession thus far for the destruction of pathogenic germs, formaldehyde (or formalin) is by far the most effective. That it will destroy these germs is established beyond peradventure; that its influence will be permanent, preventing new germicidal influences, remains to be established.

Oxymetheline, formic aldehyde, formalin or formal, is a clear colorless liquid, pungent in odor, non-irritant, non-toxic and non-corrosive. It is readily held in solution in water—a 40-per-cent. solution being generally employed; but in this shape is not stable, as it is constantly losing its efficiency. Dr. A. C. Hart says of formaldehyde: “A new world of life with its enviroing influences has been discovered. Bacteriology, so interesting, so difficult, ever filling us with surprises and confounding us with its maze of possibilities, has compelled men to look for compounds deadly to this form of life, so the field of research led to the study of formaldehyde gas, which it was hoped would prove to be a powerful germicide. How amazing have been the results! Today we know that we have in this gas an agent that makes man absolute master over those low forms

of life. Daily we are learning to use its wonderful range of application. As compared with other disinfectants, such as corrosive sublimate, carbolic acid, etc., formaldehyde and its solutions have the advantage of not being retarded in their action by albuminoid matter, and of not impairing the articles to which they are applied. * * * Formaldehyde at once recommended itself to the attention of the dental profession. It undoubtedly hardens the teeth out of the mouth, and my experience for the past two years leads me to the belief that it does harden the teeth when applied to their surfaces in the mouth, at least for a time, against the digestive action of bacteria. It will harden those white chalky spots so characteristic of beginning decay and retard further progress. Formalin should never be applied to the surface of the teeth, except the rubber-dam be in position, fitted evenly around the neck of the teeth, so that none of the liquid shall come in contact with the mucous surfaces of the mouth, as it is likely to cause an ugly slough—not unlike that caused by arsenic."

In nearly all the proprietary remedies that are being put upon the market today as disinfectants, formalin forms the base. This fact alone is evidence of the great value of the drug as a germicide; and it is not too much to hope that further experiment and investigation will prove that it is a boon of inestimable value in saving teeth from the ravages of decay.

Glyco-thymoline is a very efficient preparation for the treatment of morbid conditions of the mouth, especially useful in antral lesions, or catarrhal complications. It is of the correct specific gravity to promote osmosis, thus detaching crusts of mucus and mucus itself. It is alkaline, antiseptic, deodorizing and non-irritating. Attention is called to a very simple and easily obtained remedy for use in deep-seated cavities with putrescent pulps; as a disinfectant it is as good as many which have larger claims: it is simply carbonate of soda. Place a small lump in the cavity, and at a subsequent sitting the putrescent matter

will be found to have been destroyed, leaving the cavity white and clean for further work upon it.

Formagen is a comparatively new remedy in its combination, being composed chiefly of carbolic acid, eugenol and an indifferent porous powder saturated with formaldehyde. It is claimed that in this medicament an agent has been found that is superior to those in use for pulpitis. Dr. Bauschwitz says that in a period of nearly a year, with over 300 cases, he lost only two pulps. In his earlier experiments he found that the formagen was too much saturated with formaldehyde, and frequently caused pain upon application, but that, when properly prepared, little or no pain will be occasioned by its use. The following from the same author will explain its action :

“ Does formagen act destructively upon the pulp-tissue, upon its nerves, and upon the nerves and blood-vessels, or does it conserve them? Experiments upon calves' teeth show the following result : They were infected with bacteria from pulpitic teeth, and after four days' test no bacteria were found. The pulp treated with formagen showed the red blood corpuscles lying closely against each other, resembling a homogeneous brown-red pillar. The nerves appeared intact, the blood-vessels having the same appearance in the most extreme and finest ramification. It is assumed that the formaldehyde vapors set free and penetrated the entire pulps ; upon application to the exposed pulp the carbolic acid and eugenol act anesthetically. The latter soon produces a gentle dragging pain, on account of increased hyperemia already present with the inflammation. Shortly afterward the formaldehyde vapors stream gradually through the whole of the pulp-tissue. They kill all pathogenic germs and convert the pulp into a jelly-like homogeneous mass, and stasis occurs. While stasis is naturally formed in the blood-vessels lying nearest the point of application, these vessels receive new blood from below through the apical foramen whereby the pressure in the vessels narrowed through the stasis (the vessels being full to bursting through the hyperemia existing in inflam-

mation and that called forth by the eugenol) becomes so great that a portion of the sanguinous fluid is pressed through the vascular walls. This blood-liquid is absorbed greedily by the porous powder contained in the formagen. By this means the vessels which had severely pressed upon the nerves lying near them, through their increased volume, and thus caused pain, are relieved of the weight and a new circulation of the blood occurs, and soon thereafter the pulp is in condition to perform its functions normally. This preparation does not influence plastic fillings prejudicially. Formagen should not be used in periostitis."

Eucaine as a local anesthetic has found much favor with dentists. It is much less toxic than cocaine; also a non-mucous irritant, and susceptible of being easily sterilized. An eight- or ten-per-cent. solution of eucaine may be used without causing the toxic symptoms to be found in the use of cocaine. A saturated solution applied to the margins of the gums in crown-setting and band-fitting renders the operation comparatively painless. Dr. Cheupin says that with it he has been able to produce the "blanching" of the gums as well as the welt or elevation of the tissue, which he could not accomplish with the solutions of cocaine. One gentleman who has used it extensively says "a five-per-cent. eucaine solution relieves pain much more thoroughly than a one-per-cent. cocaine solution. The injection of a five-per-cent. solution causes profound local anesthesia sufficient for the extraction of teeth, even when periostitis is present. Often swelling is produced by the injection of eucaine, but it is absolutely harmless. The injection should not be so superficial as to permit the fluid to accumulate in the epithelial tissue which might possibly lead to the death of the epithelium."

Of *hydrogen dioxide*, Dr. Allen says: "The action of hydrogen dioxide is that of a destroying agent. It unites with the organic products of a dead pulp and absolutely destroys them as well as the germs themselves. The dead material is carried away with the gases generated. Hydrogen dioxide is simply an oxygenated water. The symbol of

water being H_2O , that of hydrogen dioxide is H_2O_2 . In other words, there is an extra atom of oxygen united with the two atoms of hydrogen. In bleaching with it, it is not only necessary to restore the teeth to a natural color, but also to bring about a healthy condition, and as far as possible an aseptic condition. Regarding the use of this agent for bleaching purposes many use a 24-per-cent. ethereal solution, and some a five-per-cent.; others still claim they obtain a more prompt and efficient action by means of the electric (cataphoric) current. So far as I can see, there is nothing gained by using the cataphoric current for bleaching purposes; neither is there any advantage in using the 25-per-cent. solution of hydrogen dioxide, and I always employ the five-per-cent. solution. If a five-per-cent. solution is used the evaporation soon reduces it to a 25-per-cent. solution, and by repeatedly swabbing out the cavity the desired change in color can be quickly obtained.

Whenever it becomes necessary to remove the pulp from a tooth the contents of the tubules should also be removed, for they are likely to prove as great a future source of trouble as the pulp itself. The contents of pulp-chamber and tubules once removed, too great care cannot be taken to prevent the ingress of germs or germ foods for the future. Hydrogen dioxide is the only agent that I know of that will make way with everything objectionable. The most satisfactory manner of obtaining absolute hydrogen dioxide for dental use is by immersing a pledget in 25-per-cent. pyrozone and allowing the ether to evaporate. To prepare a 50-per-cent. solution, one tube of 25-per-cent. pyrozone is poured on 15 minims of glycerine in an open dish and allowed to stand until the ether has evaporated; the glycerine will then contain 50-per-cent. of H_2O_2 ; the aqueous and glycerine solutions do not give as much pain in their application as the ethereal. Great care should be taken, however, in using the strong solutions in the teeth with living pulps.

Aseptol has been used to some extent as a substitute for carbolic acid. It is properly sozolic acid, a powerful dis-

infectant, and free from toxic effects; it should be placed in a dark bottle and kept from the light.

Iodol is said to be the most valuable of all substitutes yet offered in the place of iodoform. It contains about 27 parts in 30, and is obtained by precipitating pyrrol with iodo-iodate of potassium. It is a micro-crystalline brownish-white powder, having a faint thyme-like smell, and is soluble in six parts of absolute alcohol.

I desire to call attention to that excellent preparation, Phillips' milk of magnesia, with which you are all doubtless more or less familiar. It has been my practice to use and prescribe lime-water, precipitated chalk and similar preparations, but since using milk of magnesia I have found its antacid properties so superior to these that it has been used altogether, where alkaline remedies are indicated. It is especially useful in acid erosion of the teeth, and if used as a wash before retiring for the night will form an antacid coating thoroughly protecting the teeth from mucons influences.

Some therapeutic remedies which claim to have merit, have doubtless been omitted from this report, but it is difficult to embrace the whole realm of dental materia medica in one report.

DISCUSSION.

Dr. W. F. Lewis.—I wish to add that a year ago I applied this solution to a molar tooth with just such conditions as I have described. I had occasion recently to see that tooth. There has been no recurrence of breaking down of the hard tissue; the tooth seems to have taken on greater density; there is no evidence of decay in the tooth. I take this as a clear evidence of the value of formaldehyde as a germicide.

Dr. A. C. Hart.—I have had some personal experience with the subject of formalin, especially inasmuch as I refer in my paper to its use. I have used it for two years in my practice, in sterilizing my instruments and making mouth-washes for my patients. I have found it effective in stopping the decay of the teeth.

I believe formalin acts as an antiseptic and germicide because of its ability to form insoluble albuminates with various tissues; that is to say, it places the water in the tissues in a form that is inaccessible to bacteria; it may do this by its hardening action on the cellular structure.

I wish to make a note in connection with Dr. Lewis' paper upon a report made by the president of one of the most prominent dental associations in the East. The president, in making his report, referring to the use of formalin, condemned it most severely, and gives as an illustration of its use an application to the calf of his leg. He placed it on his leg and held it in position with a plaster and left it on about twelve hours. The condition of the leg was horrible. For any man that will take medicine so powerful as formaldehyde and apply it to the raw surface of his leg as a dental experiment I have not words to express my criticism. It speaks for itself. If we want to be scientific men, if we want to be considered educated men, we must use our products intelligently.

I can produce decay with sulphuric acid or nitric acid as well as anybody can produce it with bacteria. As I shall show in a paper, decay is a natural force. It is like gravitation. You can't get away from it.

Now, as regards the strength of formalin, I want to say a word. I think it should come in this report. Formalin, remember, is very powerful. When you remember, as I have told you, one in fifty thousand is as powerful as one in three thousand of hydro-naphthol, you can understand the remedy you are using. If you take a glass of water (a pint of water) and put into that a teaspoonful of formalin, you can put into it a piece of beefsteak and it will keep there for weeks without decaying. So you can see what you are using. These remedies are powerful in the extreme—owing to their ability to extract water from tissue. It literally burns them up.

I might mention another point that is known well among medical men in connection with the use of formalin. They take gelatine, expose gelatine to the action of formaldehyde and form what is called formaldehyde-gelatine. This is

sprinkled over the surface of wounds in order to promote healthy granulation and prevent infection.

As to the use of formaldehyde in cases of pyorrhea alveolaris, you know often it is impossible to cause the gum to grow back on the teeth. As I say, we must progress along certain lines. We must study conditions that are presented and meet those conditions with the requirements that we have at our hands.

Dr. Lewis.—I would make this supplementary remark, I have not been using formalin very long. I don't know whether anybody else knows much about it or not, but, so far as my experience goes, there is no pathological condition with which I come in contact that gives me so much bother, so much serious annoyance, as pulpitis. Nothing drags a man out of his bed at night and gives him so much worry over teeth and their treatment as pulpitis. If there is anything worse than that I don't know what it is. If formalin will do half what is claimed for it, it would, it seems to me, prove one of the greatest boons that has come to us as a therapeutical remedy. I am going to pursue investigation as to the use of it so closely and so thoroughly that I shall be able to report here in another year just about what its value is.

HOW TO TAKE A PARTIAL IMPRESSION WHEN THE TEETH CONVERGE OR DIVERGE.

BY F. W. BLISS, D.D.S., SANTA CRUZ, CAL.

[Read before the California State Dental Association, June 22, 1898.]

FIRST take an impression in wax, and make a model from it. Then soften and mold pieces of Ideal base-plate material upon the alveolar ridge of the model between the converging teeth, and use them for impression trays. Place upon them plaster of paris, and put them in the mouth in their respective positions, and after the plaster has hardened and before removing take another impression in modeling compound. Now remove the modeling compound first, and then the base-plate impression; they

will come from the mouth separately. Place them together so that they will sustain the same relation that they had in the mouth. Make a model from this combination, and it will be as perfect a representation of the parts as will be required.

DISCUSSION.

Dr. L. Van Orden.—We welcome, even at this late hour of the afternoon, suggestions of practical appliances which lead to good results in prosthetic work. It has devolved sometimes on some of us to open discussions on subjects in which we do not have a great deal of practice. At the same time I think any self-respecting practitioner, if he accepts prosthetic work at all, will endeavor to prosecute it in an able manner, and with the best methods obtainable. Certainly the taking of impressions of jaws which are partially edentulous and the remaining teeth of which lean one way or the other is not an easy task, and requires a good deal of skill. I think this system, as I have read it over and as the Doctor has so well demonstrated it, is a good one. It could probably be made clearer with a drawing. It would seem only just that the Doctor should bring us a model of this class of work which is of such importance.

Dr. C. B. Root.—I have seen Dr. Bliss use this method of taking impressions at his office. I think it would be an admirable thing if a patient could be furnished during the clinical hours to let him demonstrate in this room the taking of an impression. Then we can all see just how it is. After I saw him perform in his office it was much more simple and comprehensive.

Dr. F. W. Bliss.—Before closing, I would like to state that two months ago my office was burned out and every model I had in it was destroyed. That is the reason I have not any models of that operation. Although it looks very simple when you see it, it is difficult to understand from reading of it. In the first place on the rough cast that I have made I place the Ideal plate, a little piece of it, between the converging teeth. If you are familiar with the

Ideal base-plate you know that it is very smooth. It is used warm; and when cold it does not bend but breaks very easily. After fitting this piece of Ideal plate upon the alveolar ridge, between the converging teeth, before putting it into the mouth I put in it plaster of paris and it is used as impression trays to take an impression of that part. Now, you see that remains in the space between the converging teeth. Then I take the impression with the modeling compound. We don't have to oil that with the Ideal base-plate because it is very smooth, and the modeling compound will separate without any trouble. Then remove the core—you may call it a core if you please; place that in position, then take a cast of the whole.

Dr. Goddard.—I would ask Dr. Bliss how he uses the Ideal base-plate, whether wet or dry, and about what temperature? and whether he uses it in the mouth direct?

Dr. Bliss.—I think it may possibly be used in the mouth. I have been in the habit of heating it with hot water. Although it is a little longer way, I think it is easier to trim the base-plate part out of the mouth. You can heat it with water or dry heat.

Dr. Goddard.—Some years ago I used something on a general parallel with that method. Take a soft piece of modeling compound, place that in this dovetailed space, which I understand to be the shape of the space between the converging teeth, making in the mouth a core of modeling compound; before that has got hard, or perhaps after it was hard, it could be pushed up laterally over this dovetailed space, and then the sides trimmed so that it slipped from the crown of the tooth towards the gum; these little chunks of modeling compound then were placed back in the dovetailed spaces and a plaster-of-paris impression taken afterwards. This would come out of the mouth, leaving the modeling-compound cores in the dovetailed spaces. These could be pushed out laterally, put in the plaster-of-paris impression and the model made over that. It is similar to Dr. Bliss's.

Selections.

CONSERVATISM IN ORAL SURGERY.

BY TRUMAN W. BROPHY, M.D., D.D.S., CHICAGO, ILL.

[Read before the Illinois State Dental Society.]

SURGERY of the oral cavity and its adjacent parts, including facial deformities, will ever be of great interest to the surgeon, as it not only requires high skill of the diagnostician, but unusual delicacy in manipulation is demanded in order to obtain good results and avoid conspicuous cicatrices and other deformities of the mouth and face.

It is my purpose to briefly state some of the reasons why the surgeon who has been thoroughly educated not only in medicine, but dentistry, according to the curriculum of the modern dental college, is especially well qualified to enter upon the practice of this branch of the healing art.

It is customary for the general practitioner of surgery, when operating upon the maxillary bones or in the performance of operations within the mouth, when of considerable magnitude, to make external incisions in order to gain access to, and a full view of, the field of operation. I hold that these external incisions, followed as they are by the formation of scars, are in a large majority of the cases in which they are made wholly unnecessary. For example, a patient suffering from persistent neuralgia of the second or third division of the fifth pair of nerves, having undergone internal medication extending over a period of many months with only temporary relief, is taken by the physician to a surgeon for diagnosis and treatment. The surgeon decides that a nerve lesion exists and that an operation is required or indicated. The patient is prepared, the operation is proceeded with, and an external incision is made in accordance with the location of the lesion. If of the inferior dental nerve, the incision is made along the border of the jaw, the tissues are reflected up so as to expose the external surface of the inferior maxillary bone, a mallet and chisel are made use of; the bone is chiseled away so as to expose the inferior dental canal and the nerve removed. A saw is sometimes employed instead of a chisel for the purpose of removing the external

layer of bone covering the canal. The wound is closed by suturing and the patient cared for antiseptically until the wound heals.

These external incisions are wholly unnecessary, as the operation may be successfully performed within the mouth with a moderate incision over the mental foramen, a small incision being made downward from the mental foramen, so that the canal may be entered with a silver probe. Then a drill, after the form of Gates' root canal drill, exaggerated in size, may be carried into the canal and the contents thoroughly removed.

In order that the nerve may not redevelop, as it is inclined to do, the canal may be drilled out so as to freshen the surface of the bone, thus causing the exudate to take place from the freshened bony surface, and the consequent filling of the canal with bony tissue. Experience has taught us, however, that the canal does not always fill with osseous tissue, and the nerve will be reproduced in certain cases.

I am of the opinion that there is no more reason for making an external incision for the removal of the inferior dental nerve within the substance of the maxillary bone than there would be to make an external incision through the cheek to obtain access to a third molar tooth for the purpose of entering the pulp chamber and removing the pulp therefrom.

Abnormal conditions of the second division of the fifth pair of nerves, or the infra-orbital nerve, frequently require surgical operations for their cure. It has been customary in performing these operations to make external incisions for the purpose of entering the infra-orbital foramen and making exsections of the nerves. I have found that equally good results may be obtained by raising the cheek, making an incision over the cuspid tooth, dissecting up the soft parts, seizing the nerves with a tenaculum as it makes its exit from the infra-orbital foramen, carefully dissecting out its branches distributed to the cheek, thence increasing the size of the infra-orbital canal by means of a drill. Seizing the nerve, drawing it forward, and dividing it, will accomplish the same end that may be gained by making an external incision.

Operations for the removal of tumors of the oral cavity of

various kinds may also be performed without external incisions. The tumor known under the name of epulis, occurring as it does about the margins of the gum, but having its origin in the periosteum, growing sometimes to an enormous size, may be removed in all cases within the mouth without external incisions.

The method of procedure in removing tumors of the superior maxillary bones has been to make an incision usually either through the median line of the lip to the septum of the nose, thence around the ala of the nose to the inner canthus of the eye, thence to the outer canthus of the eye, dissecting up the cheek, reflecting it backward, or to carry an incision from the angle of the mouth to a line midway between the lobe of the ear and the angle of the jaw, and then to proceed to remove the superior maxillary bone together with the tumor through the incision made. I have found that such a procedure in a large majority of cases is unnecessary. Tumors, especially of the sarcomatous, or carcinomatous type, by no means always affect the bony tissue of the hard palate except by absorption of that bone by contact and pressure. Especially is this the case in the formation and development of giant-cell sarcoma, a tumor so frequently met with in and about the oral cavity.

Three times during the past four months have I found growths of this character involving the nose, all the space occupied by the antrum of Highmore extending back into the sphenoidal fissure, from which they often have their origin; and I have successfully removed them by making incisions within the mouth, over and immediately beneath the malar process of the maxillary bone, carrying them forward to the median line, dissecting the tissues away and thus reaching the great mass of the growth. With properly formed and suitable sized curettes these growths were removed, and the parts, so far as time would allow us to judge, have assumed a normal condition, as there has been no recurrence to date of these growths in any one of the three cases referred to. In one case in particular a marked absorption of the maxillary bones had occurred, leaving only the soft parts between the oral surface of the soft palate, and the tumor lying upon its superior surface. So

extensive was the destruction of the bone in this case that that which was the summit of the vault was depressed or carried downward by the tumor so as to be on a line with the occluding surfaces of the teeth. In order to make this operation without the loss of the teeth, and without the loss of the palate, it became necessary to construct a splint of metal, made by swaging it with dies, so as to make it fit the surface of all the teeth of the upper jaw. This splint was cemented into place, the patient dismissed until the following day, when the operation was made of removing the tumor. The teeth were so loose that some of them might easily been removed by the fingers. The splint, however, supported and held them firmly in place, and the tumor was removed. While the cavity has not yet filled, the parts are in an apparently healthy condition, and the teeth have become quite firm. This dependent part of the palate, caused by the pressure of the tumor, contracted and finally resumed its former shape. The palate is restored, and the articulation of the patient is in no sense impaired. If, however, the usual course of operative interference had been adopted, the patient would have been deformed through life.

In cases of osseous tumors, involving the greater portion of the maxillary bones, it is often expedient to remove them without external incisions. The superior maxillary bone may be removed within the mouth and without any external incision whatever. Necrosis and caries of the bones may be removed easily within the mouth. On several occasions I have removed one-half of the inferior maxillary bone without external incisions. In a case of necrosis I removed the entire inferior maxillæ within the mouth. This, however, was a comparatively easy procedure as there were no attachments that were difficult to release. It is needless to say that tumors of the lower jaw may be more easily removed than tumors of the upper jaw, as better access to them through the oral cavity can be secured. It may be well to urge upon all the great advantages to be obtained in the treatment of fractures of the maxillary bones by the adoption of internal splints. The skilled dentist, whose ability to manipulate metals in the construction of regulating appliances, crowns, etc., is especially well adapted to the

construction of apparatus or splints for the successful treatment of fractures of the maxillary bones. The application of external splints and bandaging, even when most skillfully applied, is very inefficient in accomplishing the work desired in securing a good adaptation of the fragments and restoration of normal occlusion of the teeth.

I wish to make a plea for conservatism in oral surgery. It is true that we meet with cases, now and then, of such a character as to make external incisions a necessity, but I feel that it is the duty of every operator to consider the best interests of his patient before operating, and in all cases, where it is possible to do so, to operate within the mouth, and thus avoid the formation of scars which will be a disfigurement to the patient through life.—[Dental Review.

THE ESSENTIAL OILS AND SOME OTHER AGENTS, THEIR ANTISEPTIC VALUE; ALSO THEIR IRRITATING OR NON-IRRITATING PROPERTIES.

BY A. H. PECK, M.D., D.D.S., CHICAGO, ILL.

[Read before the Illinois State Dental Society.]

VERY soon after assuming the duties of the chair of materia medica and therapeutics in college work, I became convinced that in our literature there was much loose statement in regard to the action of the drugs we employ in dentistry. Especially did this seem true in regard to the antiseptic powers of various agents employed as antiseptics. Further, the therapeutic action of these agents has generally not been especially considered. It seems that iodoform is still used by many as an antiseptic, though it has long been known that it has not that power. Also, that the presence of albumin renders the ordinary solutions of bichloride of mercury inert as to antiseptic power, and prevents its effectiveness in treating suppurative surfaces, yet it is persistently used for this purpose. Also, the essential oils, some of which have previously been shown to possess antiseptic virtues, have seemed to be looked upon as a group of antiseptics, and, as it has seemed to me, are being used without reference to their relative merits as antiseptics, or to their therapeutic effects upon the tissues to which they are ap-

plied. For these reasons I have, in my teaching in the Northwestern University Dental School, made trial of these agents in the bacteriological laboratory, as to their effectiveness as antiseptics, and have also, in various ways, made trial of their effects upon the animal tissues in order that I might speak definitely of my own knowledge of these matters. In this paper I will give briefly my observations upon a number of these agents.

To determine the antiseptic value of these agents the following experiments were conducted: Test tubes, each containing ten c. c. of sterilized mutton bouillon, were used. The broth in these tubes were, for the most part, infected with saliva from various members of the class. In each set of plants made, a control tube was used, i. e., a tube in which the broth was infected with saliva, but into which no antiseptic agent was placed, simply to act as a control for the results of the remaining tubes in which antiseptic agents were placed. In each instance the control tube presented a full development of bacteria, thus proving the accuracy of each set of plants. One drop of the essential oil was first used in the tubes. When one drop prevented development of bacteria the quantity was gradually decreased in other plants until the least amount that would prevent development was ascertained. To divide the drop I placed ten drops of alcohol in a small vial, and into this placed one drop of the oil; the alcohol dissolves the oil immediately. I then used in the culture tube such proportion of the drop of the essential oil desired, one drop of the solution representing one-tenth of a drop of the oil. Those drugs that were found ineffective with one drop were increased in other plants until found effective, or were given up as unsuitable or worthless as antiseptics. The same dropper was used throughout.

An antiseptic must be regarded as a poison to the vegetable cell, and many of them act also as poisons to the animal cell. I undertook this series of experiments for the determination of these differences of poisonous effects with the idea that in selecting antiseptics for use in practice we should have special regard to the effect of the agents upon the animal tissues to which they are applied. To determine

the irritating or nonirritating properties of these oils an extensive course of experiments with them has been conducted during the winter months, in connection with sores artificially produced on guinea pigs, and also on my own person. To determine the effect of these agents when applied directly to soft tissue the applications were made, in each instance, to my own person. And pardon me when I say that I believe I have come to positive conclusions regarding some of these agents along these lines.

Oil of cassia. We find that three-tenths of a drop is the smallest quantity that will prevent the development of bacteria in ten c. c. of broth, and there being sixty-seven drops of oil of cassia in one c. c., this agent is effective as an antiseptic in 1 to 2233 parts, that is to say, one whole drop of oil of cassia would prevent development of bacteria in 2233 drops of infected broth. This explanation, if you please, will hold good in connection with each agent we have used. Oil of cassia is undoubtedly the most potent of the essential oils as an antiseptic. I have had at least a dozen samples of cassia, obtained from as many different sources, and upon analyzing them have found them to be adulterated in each instance. One sample, especially, shipped direct from China to a dealer in Chicago, was found to contain fixed oils in considerable quantity. Others were found to contain alcohol, etc. This oil, as found in commerce today, is not as potent an antiseptic, by about one-half, as was the cassia obtained ten years ago. A reference to the work of Dr. G. V. Black along this same line, done about ten years ago, serves to prove the correctness of this statement. The samples of cassia he used at that time were potent in 1 to 4000 parts. If I could have obtained a pure, unadulterated sample of cassia it would certainly have outclassed oil of cinnamon as an antiseptic by a wide margin; but, as it is, as to the division of a drop, they have proven exactly the same. However, you will notice when we consider that agent, that of oil of cinnamon only sixty-three drops are required for one c. c., while of cassia sixty-seven drops are required. This simply means that one drop of oil of cinnamon is just slightly larger in bulk than one drop of oil of cassia, so that this discrimination in the number of drops

of the c. c. still places oil of cassia ahead of oil of cinnamon as an antiseptic, the potency of oil of cinnamon figuring out 1 to 2100 parts. While oil of cassia stands at the very head of the essential oils as an antiseptic, it is also true that it is the most poisonous in its effect upon soft tissue. As a test of the irritating properties of oil of cassia, a pellet of cotton was saturated with it and placed in a small rubber cup to prevent evaporation. This was applied so the surface of the skin and held there by means of a piece of court plaster large enough to cover it over and stick tightly to the surface of the skin about the edges. This was retained in place for twenty-four hours, during which time the irritation to the soft parts was by no means a pleasant feature. At the end of this period a blister invariably forms; however, the inflammation in the tissues at this time are not very great. The blister will occupy an area from one-half to one-third greater than that to which the oil is directly applied, and will fill and refill with serum several times before any tendency to recovery is noticed. At the end of forty-eight hours the inflammation in the parts involved is intense, and occupies an area four or five times as great as that to which the oil is directly applied. Numerous small, independent blisters almost invariably form about the circumference of the inflamed area. This condition continues for several days, and while the inflammatory process is at its height the sore is one of the ugliest and most formidable in appearance it has ever been my privilege to look upon. These sores, also, are very slow in healing. It is with seeming regret on their part that the inflammation is permitted to subside, and the parts to return to a normal condition. While these sores are in every way just as bad as has been described, they are, however, fraught with no serious consequences.

To further test the irritating properties of this oil, a sore, in connection with which there was considerable inflammation, was produced on a guinea pig and treated for a number of days with the spray of cassia, by means of an atomizer. So long as this treatment was continued the parts could not recover, but, quite to the contrary, the inflammation was greatly increased. Suppuration was then produced by in-

fecting the sore with pus microbes. This in turn was treated with the spray of cassia, with the result that the germs were destroyed, and the pus formation caused to cease, thus proving quite conclusively that this agent is an excellent germicide when applied to suppurating surfaces, as well as a most potent antiseptic.

To my mind, it is clearly proven that while the antiseptic and germicidal properties of this oil are of the highest order, it is one of the most irritating in its effects on soft tissue of all the agents with which we have anything to do. And because of these effects, as outlined above, I feel perfectly justified in making the statement that oil of cassia should never be used as a dressing in the root canals of teeth.

There is also another reason, aside from the above, why it should not be used, and that is, its proneness to cause discoloration of the teeth. In almost every instance in which its use is continued for a time the teeth are more or less discolored, and in some cases very considerably. This is one of the most difficult forms of discoloration to correct that we are called upon to treat.

Is it not reasonable to suppose that when cassia is used in the treatment of pulpless teeth the above disagreeable conditions may occur in the soft tissues occupying the apical-space and the peridental membrane become involved in the inflammatory process? Have you ever thought that the excessive flow of serum which so frequently occurs from the tissues of the apical spaces of teeth that are being treated with this oil is nothing more or less than the discharge of actual blister, as in the cases above recited? If these are reasonable suppositions—and I believe they are—is it still a source of wonder to any of you that teeth, under these circumstances, so suddenly develop such extreme tenderness to pressure, as they so frequently do?

Oil of cassia, however, has a place in our practice as dentists. Cassia water, sometimes, in the treatment of fistulous abscesses, is very useful. It is so stimulating to the tissues that it excites a healthy action on the part of the latter when other agents fail. Oil of cassia in the treatment of severe cases of pyorrhœa, so-called, where the pockets about the teeth are deep, and considerable pus present, is

exceeding useful. In such cases it may be used in full strength by means of a drop syringe. The oil is not permitted to remain in contact with the soft tissue a sufficient length of time to cause trouble, it is so soon diluted by the fluids of the mouth.

Oil of cinnamon of Ceylon. We find that three-tenths of a drop prevents development of bacteria in ten c. c. of broth, and that sixty-three drops constitute one c. c., thus showing this agent effective as an antiseptic in 1 to 2100 parts. Oil of cinnamon of Ceylon, as you well know, is very much the same nature as oil of cassia. However, in some respects there is a marked difference between them. It has been demonstrated that oil of cinnamon is not so irritating to soft tissue as oil of cassia. An application of oil of cinnamon to soft tissue, in the same manner that cassia was applied, and left for twenty-four hours, caused considerable irritation, and formation of blister. At the end of forty-eight hours the inflammation was severe; however, not so intense as that caused by cassia, and the area of tissue involved in the inflammatory process was not so great. Also, the blister that developed by the application of cinnamon was by no means as large as that from cassia, occupying the center of the inflamed area and spreading over tissue in extent equal only to that to which the agent was directly applied. The blister and inflammation are not so persistent as is the case with cassia, the former refilling with serum usually but two or three times, and the inflammation passing away quite readily.

A sore, attended with much inflammation, on a guinea pig was treated with the spray of oil of cinnamon with the result that it was further constantly irritated and thus prevented from healing. Suppuration was then produced in the sore, and again treated with the spray of this oil—the germs being destroyed and the pus formation ceasing. The action of cinnamon was not so vigorous as that of cassia.

To my mind, cinnamon is altogether too irritating for use in the treatment of pulpless teeth.

A synthetic oil of cinnamon, a sample of which I secured this spring from the first lot sent to this country (it being prepared in both France and Switzerland) proves to be as

potent an antiseptic as the regular oil, three-tenths of a drop preventing development of bacteria in ten c. c. of broth. Sixty-four drops of this oil constitute a c. c., thus showing it effective as an antiseptic in 1 to 2133 parts. It is, however, in its first effects, more irritating to soft tissue than oil of cassia. An application was made to soft tissue, and at the end of fifteen hours a fully developed blister, in extent larger than the area of tissue to which the oil was applied, was the result. There was very little inflammation or discoloration of the tissues. The first effect of this oil on soft tissue was so vigorous, very much tenderness and inflammation were confidently expected to follow. In this, however, I was disappointed. The blister continued to refill with serum several times, but actually no tenderness or inflammation worthy of mention developed in the surrounding parts. I cannot recommend it for use in the treatment of pulpless teeth.

Beech wood creosote is the next agent, from point of potency, as an antiseptic; five-tenths of a drop prevented development of bacteria in ten c. c. of broth. There are sixty-four drops in one c. c., thus showing creosote effective as an antiseptic in 1 to 1280 parts. This agent is practically nonirritating to soft tissue. An application remaining for a period of thirty-six hours produced practically no irritation. There was just the slightest evidence of irritation about the center of the spot where it was applied. There was no inflammation. The surface of the skin was slightly discolored and also slightly burned or seared over, but not to an extent that caused the loss of any tissue. A sore on a guinea pig was treated with the spray of creosote with the result that the inflammation gradually subsided, and the sore healed with little delay.

Another sore in which suppuration was produced was treated in a like manner, the germs being readily destroyed and the pus formation stopped. Continued treatment resulted in the gradual healing of the sore. Creosote has proven its right to stand among the first, from point of potency, as an antiseptic, and because it has been demonstrated that it is practically nonirritating to soft tissue, it is a safe agent, and in some cases a very desirable one, for

use in treatment of pulpless teeth. For a case of putrescent pulp, for instance, of long standing, one in which the lateral openings and also the dentinal tubules are completely saturated with mephitic odors and gases, creosote, in my judgment, is the most potent and desirable of the available agents. It is very penetrating, and one of the most persistent in its effects of all the agents at our command. I have used it to good advantage in severe cases of apical pericementitis. However, in some instances, where discoloration of the teeth has occurred, it has seemed that it was due to the action of the drug. Creosote being more or less of the nature of carbolic acid, possesses to a certain extent the properties of a local anæsthetic, and, because of this property it has quite a beneficial effect upon inflamed tissue.

Oil of cloves. Six-tenths of a drop prevented growth in ten c. c. of broth; sixty-nine drops constitute one c. c., showing it effective as an antiseptic in 1 to 1150 parts. Oil of cloves is absolutely nonirritating to soft tissue. An application to the surface of the skin for thirty-six hours left no more evidence of having been confined there than so much sterilized water would have done; no irritation, no discoloration. Sores were produced on guinea pigs and treated with the spray of this oil. The inflammation subsided more rapidly than when treated with any other agent, and the sores healed as rapidly as they could, simply proving beyond any possibility of doubt that, while effectively destroying microbes, the only action of oil of cloves in contact with irritated, inflamed soft tissue is that of a quieting, soothing agent, serving to reduce the irritation and inflammation, and returning the disturbed tissue to its normal condition. A sore in which suppuration was produced by being infected with pus microbes was treated with the spray of this oil; the germs were destroyed, and the formation of pus was stopped.

A sore on my arm, produced by an application of cassia, became infected and pus formed. This was washed thoroughly with a 1 to 1000 solution of bichloride of mercury every night for several times, and dressed in turn with iodoform, nosophen and aristol, with no other result than an absolute failure to stop pus formation. One night, after

having washed the sore thoroughly with the bichloride solution, I poured oil of cloves on the raw tissue. There was only a very slight smarting for a few minutes, after which its action was that of a quieting, soothing agent. This application was held in position for twenty-four hours. It was then removed; no pus was present, and the little granulations could be seen springing up all over the surface of the sore. It was immediately dressed with aristol and let alone for forty-eight hours, at the end of which time it was perfectly healed.

Another sore on the lower part of my right leg, the result of an application of formalin, was causing a great deal of trouble. The inflammation was severe, the tissues were very tender, the muscles felt bound up and were very painful, it being exceedingly difficult to walk. Continued treatment with ordinary remedies resulted in no relief. One morning, after having thoroughly cleansed the sore, a liberal quantity of oil of cloves was placed on it, and the bandage applied. Within four hours' time the very disagreeable, drawn condition of the muscles passed away, the pain ceased, and the foot could be moved in all directions as freely and comfortably as could the other, and could be used in walking just as well as it ever could.

Oil of cloves, for general use in the treatment of pulpless teeth, is certainly one of the best agents at our command. It possesses the property of destroying or rendering inert septic and infectious material. In cases of apical pericementitis it is perhaps the best agent that can be used. It possesses local anæsthetic properties to a marked degree, and, like some of the other agents, because of this fact, serves to reduce the inflammation in the tissues in the apical space and causes them to return to a normal, healthy condition.

Oil of bay. Seven-tenths of a drop prevented development in ten c. c. of broth. Seventy-two drops are necessary for one c. c., showing this agent effective as an antiseptic in 1 to 1028 parts. Oil of bay, to me, is a comparatively new agent; and I believe I am warranted in making the statement that it is a new agent to the vast majority of the dental profession. A year ago last winter a gentleman spoke to me

about this oil, said he had been using it for some time in the treatment of pulpless teeth, and that, so far as his clinical experience went, had found it to be an efficient and agreeable agent. He stated that he had not observed any bad effects along the line of producing irritation, or anything of that sort. He requested that I test it, which I did, with the result above stated, which places this oil in the foremost ranks of the list of antiseptics. I have used it more or less since, and in one case, that I have in mind, thought the irritation and tenderness which was induced was directly due to the action of the oil. But in subsequent use, have observed none of these effects. I came to the conclusion that I was wrong, that there must have been some foreign, irritating substance present which caused the trouble. I have made two applications of the oil to soft tissue, retaining each in contact for thirty-six hours, for the purpose of observing its effect, and no irritation resulted in either case.

A sore was produced on a guinea pig with an irritant which caused intense inflammation. This was treated with the spray of bay for several days, and the closest observation did not reveal any additional irritation, but to the contrary, the inflammation gradually subsided. However, not so rapidly or willingly as when some other agents were used—as cloves. A sore in which suppuration was produced, on being treated with the spray of bay, yielded very nicely, the germs being destroyed and the pus formation stopped. I think we are safe in concluding that oil of bay is a valuable addition to our list of agents for the treatment of pulpless teeth. So far, I can see no objection to its use, and it is certainly a most effective agent.

Oil of sassafras. Seven-tenths of a drop prevented growth of bacteria in ten c. c. of broth; seventy drops are required for one c. c., showing it effective as an antiseptic in 1 to 1000 parts. Oil of sassafras in contact with soft tissue for thirty-six hours produced no evidence of irritation. It has proven to be a very potent antiseptic. I have treated sores, in which there was marked inflammation, with the spray of sassafras, and the result was much the same as with the last previous agents; the inflammation subsiding, the irritation passing away and the sore healing. It has not

exhibited the ability to destroy germs and prevent pus formation to nearly the extent that the stronger agents have. I have never used oil of sassafras in the treatment of pulpless teeth, but I certainly can see no reason why it should not be a potent and harmless agent in this connection.

Oil of peppermint. Eight-tenths of a drop prevented development of bacteria in ten c. c. of broth; seventy-two drops are necessary for one c. c., showing this agent effective as an antiseptic in 1 to 875 parts. An application of oil of peppermint to soft tissue continued for thirty-six hours produced no irritation, no discoloration of the skin, no inflammation, thus showing conclusively that this, also, is nonirritating to soft tissue. A sore in which considerable inflammation was present was treated with the spray of this oil, with the result that the inflammation readily yielded, the irritation subsided and the sore healed. Another sore in which suppuration was produced was treated in the same way, with the result that the germs were destroyed, and the pus formation was stopped, which proves that this agent is not only an antiseptic, but also destroys the germs and thus prevents pus formation. This is an agent which I have rarely ever used in practice. Three years ago I used it a little in treatment cases, but discarded it simply because of its persistent, penetrating odor. Other than that, I can see no objection to its use in pulpless teeth.

Dr. Black's "1-2-3." This is the next agent in point of potency. One and four-tenths drops prevented development in ten c. c. of broth; sixty-five drops are necessary for one c. c., showing this agent effective as an antiseptic in 1 to 454 parts. "1-2-3," as you well know, is a preparation given to the profession a number of years ago by Dr. G. V. Black, consisting—the mild solution, so-called, and this is the one used in these tests—of one part oil of cassia, two parts carbolic acid crystals, and three parts oil of gaultheria. It has always proven itself a most efficient agent in the treatment of pulpless teeth, and has been used by very many in the dental profession for the last ten or twelve years, possibly more than any other one agent. I have used it continuously since I have been in practice, and have never observed any bad effects from its use. No irritation to the

soft parts, no tenderness of the tooth to pressure, no inflammation resulting. Possibly some of you will wonder why "1-2-3" is such an efficient and desirable agent, consisting, as it does, of cassia, carbolic acid and wintergreen; carbolic acid being not a positive persistent antiseptic, but one whose restraining effects upon the development of bacteria are only transient; oil of gaultheria being absolutely worthless as an antiseptic, and the use of cassia being so thoroughly condemned because of its extreme irritating properties. Of course, this agent depends upon the cassia for its antiseptic properties. The gaultheria is used as a diluent to the cassia. The carbolic acid was used more especially because of its anæsthetic properties on soft tissue. When these different agents are properly mixed to form "1-2-3," it is the opinion of Dr. Black that there is more or less of a chemical union between them, so that the individuality of each separate agent seems to be lost, and the result is the formation of a new agent, or one with different characteristics from those possessed by the three individual agents. At any rate, it is nonirritating to soft tissue. An application left on for thirty-six hours produced no irritation whatever. There was only a slight searing, and discoloration of the surface of the skin. Sores with much inflammation present were treated with the spray of "1-2-3," which did not produce further irritation. Its action was more like that of a neutral agent (so to speak), not irritating the sore, nor, on the other hand, imparting, to any appreciable extent, a soothing, quieting influence, the inflammation subsiding just about as it would if left to itself with all irritating influences removed. A sore, in which suppuration was produced, was treated with the spray of this agent. It demonstrated its right to be classed as a very potent germicide. The germs were destroyed and the pus formation ceased.

"1-2-3," as formed with the present cassia of commerce, is not so potent an antiseptic as that formed with cassia obtainable several years ago. This must be due to the fact stated above, that cassia is so adulterated at the present time. In fact, "1-2-3" is lessened in potency in almost direct proportion to the extent of the adulteration of the cassia.

Seven-tenths of a drop was effective in ten c. c. of broth,

as shown by experiments conducted by Dr. Black several years ago.

"1-2-3," as shown by these experiments, is abundantly effective, but if cassia is continued to be adulterated the time may come when it will not be. For general use, in the treatment of pulpless teeth, "1-2-3" is certainly an effective and excellent agent.

Carbolic acid, ninety-five per cent. One and eight-tenths drops prevented development in ten c. c. of broth; sixty-one drops are required for one c. c., showing this agent effective as an antiseptic in 1 to 338 parts. Carbolic acid is not a permanent, positive antiseptic. Its restraining power on the development of bacteria in the majority of plants one makes is only transient. One and eight-tenths drops prevented development for a period of three days, after which the bacteria developed in almost every instance. The restraining effect of this agent upon the development of bacteria seemed to be almost in direct proportion to the quantity of the agent used in the culture tube. The use of this agent in dentistry is so familiar I need not dwell on that point.

Oil of myrtol. One and nine-tenths drops were necessary to prevent development of bacteria in ten c. c. of broth; sixty-eight drops constitute a c. c., showing myrtol effective as an antiseptic in 1 to 357 parts. Oil of myrtol is an agent which I have used but very little in practice. In the majority of cases in which I have used it there has seemed to be more or less irritation produced, more or less tenderness of the tooth developing, so that it impressed me as being somewhat of an unfavorable agent for this purpose. An application of myrtol of soft tissue for thirty-six hours produced decided irritation, and there was a strong tendency to the formation of blister. The surface of the skin was destroyed. The irritation and inflammation present continued for two or three days, gradually abating. A sore on a guinea pig being treated with the spray of this oil, showed evidence of further irritation. So long as the treatment was continued, the inflammation refused to subside. A suppurating sore, being treated in the same way, was certainly benefited by a consequent destruction of the germs

and cessation of pus formation. There is no doubt but that this agent is quite irritating, and one that should not be generally used in the treatment of pulpless teeth. There are cases in which I use strong myrtol water, seemingly to good advantage, and these are in connection with abscesses, with fistulous openings, especially those of long standing, in which there is more or less irritation of the soft parts throughout the tract of the fistule, and that uneasy, disagreeable sensation oftentimes experienced by the patient in connection with these cases.

Oil of cajeput. Six drops are necessary to prevent development in ten c. c. of broth; seventy-two drops are required for one c. c., showing this agent effective as an antiseptic in 1 to 120 parts. Cajeput is nonirritating to soft tissue. Applications of this oil to soft tissue, retained for thirty-six hours, produced no evidence of irritation; in fact, the discoloration of the skin was very slight and remained but a short time. A sore on a guinea pig, in which there was considerable inflammation, was treated with the spray of oil of cajeput, and no increase of the irritation was produced. Another sore in which suppuration was produced was treated in the same way, with the result that the germs were gradually destroyed, its action, however, not being very positive, for if the treatment was discontinued for a day or two the pus formation continued as before.

Oil of cajeput is an agent which I have never used very extensively in my practice. At first I did use it more or less in the treatment of pulpless teeth, but latterly I have not used it in this connection; in fact, the only use I make of it is occasionally to moisten the inner walls of the root canals previous to filling with gutta-percha. For this purpose its nonirritating nature recommends it, and especially the fact that it is a solvent of gutta-percha and causes the latter to adhere to the walls of the canals.

Eucalyptol (Sander's and Merck's). Six drops of each of these preparations are necessary to prevent development of bacteria in ten c. c. of broth; seventy drops are necessary for a c. c., showing each preparation effective as an antiseptic in 1 to 116 parts. Eucalyptol in contact with the skin for thirty-six hours produced no evidence of irritation,

no inflammation, no discoloration, thus proving that the agent is nonirritating and harmless in contact with soft tissue. A sore in which considerable inflammation was present was treated with the spray of this agent with the result that the inflammation readily yielded, the irritation subsided, and the sore healed, thus further proving that it is nonirritating even to injured; inflamed soft tissue. A sore in which suppuration was produced was treated in the same way, with virtually the same results as with cajeput; it exhibited a restraining influence upon the development of bacteria and pus formation, but the treatment being discontinued for a while, pus formation went on as before. As an agent to place in the root canals of teeth after the removal of a pulp, following devitalization, in order to keep the parts healthy for a few days previous to root canal filling, it is, perhaps, the agent that I use more than any other. It is certainly harmless, never exciting irritation. For the purpose of slightly moistening the inner walls of canals previous to root canal filling, eucalyptol is the agent that I nearly always use.

The oil of eucalyptus, as found in the market, only produced a restraining effect upon the development of bacteria when a saturated solution was formed with the bouillon.

Oil of gaultheria was carried in my experiments as high as eight drops, this quantity forming a saturated solution in the ten c. c. of broth, that is to say, the broth had taken up, or dissolved, all of the oil that it could possibly retain, there being also a large number of free globules floating about in the broth, and still development of bacteria took place quite abundantly, showing that this agent is useless in restraining the development of bacteria. It is certainly of no use to us as an antiseptic.

Eugenol. This agent resulted in the same way as gaultheria. Eight drops were used in the ten c. c. of broth, which amount formed a saturated solution with numbers of globules of the free oil floating about, and still the bacteria developed, thus proving that eugenol also is useless as an antiseptic.

Formalin. Of late the dental profession has taken up this agent for the treatment of pulpless teeth, the treatment

of abscesses and for devitalizing pulps, etc., and many are reporting wonderful results from its use. Not long since I read an article in one of our journals in which the writer paid a glowing tribute to this agent as a most efficient and desirable one for the treatment of nearly all conditions of pulpless teeth. Having had some experience with it myself, and because of many negative results experienced, having had my suspicions aroused as to whether it was a proper agent to be used about the mouth, I decided to investigate it as thoroughly as possible. First, I tested it as to its antiseptic properties, and found it to be quite a powerful antiseptic. Of the formalin preparation, which is a saturated solution of the gas formaldehyde in water (the latter taking up about forty per cent of the former), four-tenths of a drop prevented growth of bacteria in ten c. c. of broth; fifty-six drops are necessary for a c. c. This shows formalin potent as an antiseptic in 1 to 1400 parts. Somebody has been so enthusiastic over this agent as to make the statement that it is fully as potent an antiseptic as is bichloride of mercury. This is certainly a mistake. I prepared a 1 to 1000 solution of bichloride of mercury and found it required nine drops of this solution to prevent development of bacteria in ten c. c. of broth. I prepared a 1 to 1000 solution of pure formaldehyde, which we have now in solid state—the gas been reduced to such by chemical processes—and of this solution found that it required forty drops to prevent development of bacteria in ten c. c. of broth, thus proving that formaldehyde is not so potent an antiseptic as bichloride of mercury, by at least fourfold. I next resolved to determine its ability to irritate soft, animal tissue—the same as I did with the other agents. I took a small pellet of cotton, saturated it with formalin, placed it in a small rubber cup to prevent evaporation, placed it on the surface of the skin on the lower part of my right leg, and covered it over with a large piece of court plaster stuck tightly about the edges. This was placed there the 14th day of last March, at 12:30 A. M. I went to bed and went to sleep. Between four and five in the morning I was awakened by the pain, and could get no rest after that. The pain was quite intense, and of a very peculiar

character. It seemed as if something were inside my leg gripping as if in a vice. Then it would take a turn and twist about, as if tearing the inside out. It would stop for an instant, and then the performance would be repeated with renewed vigor. The pain continued more or less severe all day. I wanted to keep the application in place for twenty-four hours—the time adopted for the other agents—but at the end of twenty hours, the pain had been so constant and the tissues began to look so ugly, that I concluded to remove it. The tissues to which it was applied and for about two inches in all directions was turned as white as pure snow, as if all the blood were driven from the parts. The pain was lessened very considerably within a short time after the application was removed. The tissue to which it was directly applied was perfectly anæsthetized to a considerable depth. Just at the circumference of the application there was considerable tenderness. There was much swelling, which seemed to be more like that of cedema than of true inflammation. In about two or three days some color began to return to the parts, except to which the agent was directly applied, which latter never regained its normal color. In about two days more a line, purple in color, began forming at the circumference of the point of application—a line of demarkation—and it became apparent there was to be a break in the tissues. This break occurred, and sloughing took place; considerable tissue was lost all over the surface of the inflamed area.

The tissue in the center raised about the edges, but was very obstinate about coming away. From the time the agent was thoroughly absorbed in the tissues physically I was not up to the standard; my appetite was more or less impaired; the digestion and eliminative organs were somewhat interfered with. These conditions continued to grow worse until the climax came in the form of quite a severe case of systemic poisoning, the poisonous matter being thrown off through the medium of a severe diarrhoea, and also much vomiting—the former continuing for a period of three days, the latter for one day, following which time my physical condition rapidly improved.

Having seen a number of cases that have been treated by

physicians with various per cent. solutions of formalin in which more or less sloughing of the soft parts has resulted—one which I saw not long since in which as low as a two per cent. solution was used, in connection with which considerable sloughing resulted—and also because of the very vivid recollections of my own personal experiences with it, I have come to the conclusion that we should get along without it in the treatment of diseased conditions about the mouth.

As I have devoted a paper to this agent before another society, I will not give my observations of it in more detail here. My paper is now too long for me to consider the subject of the selection of antiseptics with a view to utilizing their therapeutic effects in individual cases in connection with their antiseptic powers, but this can be fairly made out from the observations related.—[Dental Review.

Reports of Society Meetings.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, AUGUST 2, 1898.

Dr. O. B. Burns demonstrated his method of procedure in the fitting and insertion of his gold-plate "veneers." Pure gold of 28 or 30 gauge is used, being burnished into position over the cavity, and allowed to project slightly over the margins. A rim of gold, accurately fitting cavity, is then soldered to the internal surface of the veneer. The rim, being united to the veneer close to its margins, prevents the possibility of its edges springing away from the tooth. A better hold is also secured to the cavity, thereby gaining solidity.

MEETING OF TUESDAY, AUGUST 9, 1898.

Dr. Russell H. Cool exhibited a case of necrosis of the alveolar process of the inferior maxilla, in the region of the left second molar, in a young man aged 22. The history of the trouble dated from the time the patient went to an "advertising" dentist of the city for extraction of the second lower molar. In his attempts to extract the tooth the den-

tist probably splintered the process and infected the wound by the use of dirty instruments. The patient's face became swollen, pus formed and he went to a surgeon for treatment. The indication was to open the abscess and evacuate the pus. This operation was performed by the surgeon in a manner only too common among medical men in the treatment of abscesses of dental origin, that is, opening through the cheek. As a consequence the necrosed process is complicated by a pus-discharging sinus opening through the center of a large scar, which appears upon the face near the angle of the jaw. This scar is in a very exposed position, and appears as a very considerable disfigurement. Later an operation will be made upon this scar in an endeavor to obtain a better result, as a considerable amount of cicatricial tissue adds to the deformity.

MEETING OF TUESDAY, AUGUST 16, 1898.

Dr. Wm. J. Younger informally entertained the club with an account of some of his experiences and observations during his attendance at the International Medical Congress at Moscow, Russia, in August, 1897. His remarks embraced not only medical and dental topics, but also some of the social customs of the Russians.

Adjourned to August 30th.

MEETING OF TUESDAY, AUGUST 30, 1898.

A clinic demonstrating his method of regulating teeth by means of silk ligatures was given by Dr. Wm. J. Younger.

Dr. Younger.—I will demonstrate method of employing silk ligatures in order to effect elongation, torsion, and some of the movements more commonly employed in orthodontia. If there are any questions asked I would be pleased to answer them, or show the mode of procedure in special cases which any of the gentlemen would care to present.

Before I begin to place the ligatures in position I would like to impress the necessity of tying all knots slowly, for after the thread has been stretched nearly to breaking point it soon gives more or less, and by waiting a moment or so before finishing the knot this slack in the thread can be taken up and a greater amount of tension can thus be obtained.

I notice that a certain individual in the East who has learned something of this method of regulating from attending the demonstrations which I have made in this city, has been giving clinics on this subject. Among other erroneous remarks, he makes the statement that after the silk is moistened it swells more or less, and the tension is increased. This statement is entirely wrong, as silk is not tightened in this manner, although cotton or linen may be. To be successful in this method, all the tension required must be obtained at the moment of placing the ligatures in position, as the force depends entirely upon the elasticity of the silk. The smaller the size of the silk used in order to obtain sufficient force the better, as economy in space is very important. The knots of larger sized silk thread are very liable to irritate the tissues; also, thin fibre grasps the tooth with a very superior retentive force. The sizes I commonly employ are A, 0, 00, 000.

I consider it very important to thoroughly wax the silk thread, as this will bind the minute fibres together, and thereby its tensile strength is increased. A knot in thread that has not been waxed is always liable to break; waxing it also enables it to be drawn tighter.

A Member.—How long may ligatures be left on the teeth before it becomes necessary to change them?

Dr. Younger.—When regulating I generally change the ligatures every two or three days. When used for retaining purposes, as for teeth loose from pyorrhœa, it would seem that they last for a surprisingly long time. I removed ligatures this morning which I placed in the mouth during my last visit, twenty-two months ago. Tartar had accumulated around the thread and held it tight and immovable.

PACIFIC COAST DENTAL CONGRESS.

THE Second Annual Meeting of the Pacific Coast Dental Congress convened at Portland, Oregon, August 22d, and continued in session for four days.

The meeting was called to order by Vice-Chairman

Dr. Frank C. Pague, of San Francisco, who introduced the officers of the Congress: Dr. C. L. Goddard, of San Francisco, President; Dr. Geo. H. Chance, of Portland, Vice-President; Dr. R. W. Meek, of Oakland, Cal., Secretary-General.

The honorary vice-presidents were also introduced and invited to occupy seats on the platform with the presiding officers.

The Mayor of Portland, Hon. W. S. Mason, delivered an address of welcome to the visiting dentists, after which Dr. Goddard delivered his address as president of the Congress.

A very interesting program of papers and clinics followed, of which the GAZETTE will be able to report more fully in its next issue. The Congress closed with an excursion up the Columbia river.

SAN FRANCISCO DENTAL ASSOCIATION.

THE San Francisco Dental Association held its regular monthly meeting on the evening of the 12th instant. The attendance was fair.

The meeting was called to order at 8:45 P. M., Dr. Frank L. Platt presiding.

The resignation of Dr. L. Van Orden was accepted with regret, the Doctor being forced to resign through ill-health.

Owing to the fact that a lantern was not obtainable, the reading of the paper by Dr. R. H. Cool was postponed.

President Platt stated that Dr. F. C. Pague would clinic and possibly read a paper at the next (October) meeting. The annual election of officers will also take place.

It was also moved and carried that Dr. W. A. Moore, of Benicia, be given the privilege of the floor at the next meeting to present a scheme for furthering the enforcement of the State dental law.

Dr. C. E. Post, librarian of the Association, stated that a microscope was kept in the Y. M. C. A. office, which could be obtained for service of the Association upon application.

The Association's library is steadily increasing, it at present comprising over 200 volumes.

General Medical Miscellany.

LARD AN ANTIDOTE TO STRYCHNINE.—Dr. W. D. Turner relates some original experiments, proving that common lard is a perfect antidote to strychnine. He gives the lard freely by the mouth—ten to twenty ounces. He finds it marvelously effective, even when administered after the convulsions have begun.—[Virginia Medical Semi-Monthly.

"SPRAINED" ANKLE.—A German army surgeon claims that in a large number of "sprains" of the ankle joints, the Roentgen ray showed that in the majority of cases there was actually either fracture or dislocation of some one or more of the small bones. The treatment should be fixation, in order to prevent false joints, exostoses, etc., leaving permanent impairment of functions.—[Ex.

SURGERY FOR PEBBLE IN THE EAR.—Dr. Jul. Boeke reports the following case: A pebble lodged in the left ear of a three-year-old boy; after repeated syringing failed to dislodge it, its extraction was unsuccessfully attempted under necrosis by means of the ear-spoon and pointed hook. Then an incision was made behind the pinna of the ear and parallel with it, and the cartilaginous external auditory canal was opened. The pebble was seen wedged tight at the bottom of the canal. It was necessary to remove a few circular layers from the bony wall of the auditory canal to enable one to lift out the stone with the ear spoon.—[Ungar. Medic. Presse.

SEEING STARS.—If a man falls so as to strike his head violently, or if he gets a blow over his eye, he is said to "see stars." The cause of this curious phenomenon is found in a peculiarity of the optic nerve. The function of that nerve is to convey to the brain the impression of light. It recognizes nothing but light. It is susceptible to no other impression; or, if acted on by any other agent, it communicates to the brain the intelligence of the presence of that agent by sending along its fiber flashes of light only. Irritate this nerve with a probe or other instrument, and it con-

veys no sensation of pain, but simply that of luminous sparks. The pain of the blow on the eye or the fall on the head is realized through the nerves of general sensation; but, insusceptible to pain or any other feeling, the optic nerve sends to the brain its report of the shock by flashes, sparks and "stars."—[Family Doctor.

WARTS.—Regarding these unsightly excrescences, a Paris correspondent says: It is now fairly established that the common wart can be easily removed by small doses of sulphate of magnesia taken internally. M. Colrat, of Lyons, states: "Several children treated with three-grain doses of Epsom salts, morning and evening, were promptly cured." M. Aubert cites the case of a woman whose face was disfigured by warts, and who was cured in a month by one and a half dram doses of magnesia taken daily. Another medical man reports a case of very large warts which disappeared in a fortnight from the daily administration of ten grains of the salts.—[Practical Druggist.

ICE TREATMENT OF YELLOW FEVER.—Surgeon Irving C. Rosse, of Washington, retired, who is widely distinguished for his writings on army diseases, and who has had extensive experience in dealing with cases of yellow fever, says, as quoted in the *New York Sun*:

"One of the most successful men that ever treated yellow fever was the celebrated Dr. Stone, of New Orleans. He first treated the disease by giving the patient some mild aperient, say a dose of castor oil, if the stomach could bear it. This was followed by quinine, which stopped the pain in the bones. Then he gave an alkali mixture, and if the patient was nauseated and showed an inclination to vomit, he placed towels wet with brandy over the epigastrium. He also placed great dependence on cracked ice, a little brandy and Scotch ale to quiet the stomach. He also insisted on the patient being kept quiet, in a ventilated room that was free from draughts."

This treatment reminds us of the experience of a fellow clerk who told us, near sixty years ago, how he came through the yellow fever after having been given up by the doctors to die. They said, "he can't live but a few hours,

let him have anything he likes." So the doomed fellow asked for ice, and ate it constantly all the hours allowed to him—after which he took a new allowance, and lived to tell the story as an able-bodied man in the wholesale hardware trade in old Pearl street, New York.--[Mod. Med. Science.

HYGIENE OF THE JEWS.—Dr. Charles Long says that Judaism has made religion the handmaid of hygiene, it has utilized piety for the preservation of health. The first great step in primitive medicine was taken many centuries ago when Moses gave to the Hebrews their laws of physical and moral life. He believes that no other religion takes such precautions for the health of its followers, and states that statistics comparing the length of life of the Jew and Gentile neighbor are decidedly in favor of the former, this advantage being the direct result of his religion and its rites.

Especially strict were their laws pertaining to the ingestion of contaminated meat. The Mosaic law permitted the consumption of meat of those animals only that are both cloven-footed and chew the cud; all others are called unclean. Specially mentioned as forbidden are the pig and the hare. Of all animals that live in water only those which have both fins and scales were permitted. This law excludes oysters, clams, lobsters and crabs. The Jew is not allowed to eat the blood of any animal or those parts that consist entirely of fat.

Was Moses not wise, the author asks, in permitting only certain animals as food and forbidding all others? When we consider the warm climate in which the Jews of those days lived, and the rapid decomposition which takes place in fat, in blood, and in pork, was the forbidding of these not a good sanitary measure? In excluding pork from the diet-list who can doubt that Moses was cognizant of the dreadful affection trichinosis? In excluding oysters, clams, lobsters, crabs, etc., would it not be reasonable to suppose that Moses knew that some skin diseases were due to the ingestion of these unclean foods?—[Good Health.

DEGENERACY [?] OF AMERICAN MANHOOD.—The rejection by the examining surgeons of so many militiamen and volun-

teers desiring to enter the service in the present war has received a great deal of newspaper comment all over the country. It has been asserted that the average American youth had degenerated physically; cigarettes, bicycles, dissipation, city life, etc., are all, according to the theorists, more or less responsible. In order to get twelve thousand soldiers for the regular army, some sixteen or seventeen thousand men had to be examined. In one body of men from Detroit forty out of seventy-five were rejected.

It should be remembered that the physical examinations now being conducted are carried on with great rigor, such slight imperfections as the loss of four teeth, corns, a crooked toe, etc., being sufficient to reject a recruit. Many rejections are alleged by the newspapers to have been made because of "the cigarette heart." Our knowledge of the Michigan troops has shown us that the men, as a rule, use tobacco in most cases in some other form and the damage is done not by the cigarette in particular but by the old offender, "tobacco." The bicycle has come in for its share of the blame. The senseless rushing about the city streets of the scorcher, the "century runs," and the hump-backed position, all so dear to the devotees of the wheel, are now producing their legitimate fruits in weakened, irritable hearts, strained valves and other defects. In some instances among bicycle riders seventy-five per cent. of the rejections have been due to varicocoele, and it seems reasonable to believe that the wheel would tend to produce this disease, at any rate, the wheel is suggested as its cause.

Upon one point all the examiners are unanimous, that is, the country recruits furnish a larger proportion of physically acceptable men than do those from the city.—[Medical Counselor.

REMARKABLE SENSORY EFFECT OF A SPINNING SHOT.—First Lieut. W. H. Wassell, Twenty-second United States Infantry, writing to his parents in Pittsburgh, thus describes his sensations on being perforated through face, neck and back by a bullet from a Mauser rifle:

"I will never forget the sensation of being shot. All at once it seemed as if I was lifted up from the ground and whirled round and round, oh, so terribly fast. I never lost

consciousness during the sensation. I felt myself going, but I seemed to realize that if I let myself go it would be all over, so I took a brace, and after what seemed an age of this awful whirling, I was dropped to the ground.

"Then it seemed as if no one would notice that I had been hit. It seemed an age before I heard a man swear and say, 'they have hit Lieut. Walsell.' He picked me up to carry me down behind the crest of the hill, and what a storm of bullets the poor fellow got as he raised me. I didn't know how badly I was hurt, but from the blood gushing from my mouth and the pain in my back where the bullet had left me, I imagined I was in it pretty badly.

"Capt. Lochinvar came to me and I remember telling him I did not know whether I was done for or only scared to death. One of the men dressed me as well as he could with my first-aid bandage, and I lay under a tree until about six o'clock. About five o'clock some of the Spaniards began a riot on the other side of me, and for a little while the bullets from friend and foe whirled over me and struck near me. About sundown, the firing having ceased, I was carried about a mile to the brigade hospital. Here I was roughly dressed. The doctors were worked to death and did their best.

"All night and all the next day our hospital was fired upon by Spaniards. Toward the evening of the second day I was put in a wagon and taken about three miles to the division hospital, which I left on the morning of the 3d to go to Siboney."—[Ex. _____]

THE SCHLEICH METHOD OF GENERAL ANESTHESIA.—Time and experience are confirming the value of the method of general narcosis proposed by C. L. Schleich, of Berlin, at the German Congress of Surgery in 1895, which is based on the logical principle that a narcotic substance inhaled is taken up more readily into the circulation and is then eliminated in the exhaled breath the more rapidly and completely in proportion as the point at which it boils or vaporizes approaches or coincides with the body temperature of the inhaler. A non-vaporized narcotic, such as chloroform, whose boiling point is at 65 degrees C., is absorbed less

readily, requiring a larger amount, is retained in the system more, and the task of eliminating it does not devolve upon the proper organ, the lungs, but upon the other parenchymatous organs, especially the liver, which explains the alterations in these organs after death from chloroform. If, on the other hand, a narcotic with a very low boiling point is administered, such as ether (boiling point at 34 degrees C.) the vaporization is so intense at the temperature of the body that it interferes with the respiration, hinders or prevents the disassociation of the respiratory gases, producing cyanosis, retention of the carbon dioxid, which is under less pressure than the super-vaporized ether, and also stretching and tearing the epithelium of the alveoles, leading to secondary pneumonic infiltration. He therefore proposed a triple combination whose boiling or "vaporizing maximum" is identical with the temperature of the body; petroleum, ether or benzin (with an established point at 60 to 65 degrees C.), sulphuric ether and chloroform, varying the amount of each in proportion to the rapidity of elimination desired, to secure a higher or lower boiling point. Formula 1. For brief operations. The boiling point, 38 degrees C., coincides with the internal temperature of the body: Chloroform, 15 parts; petroleum ether 5; sulphuric acid 60. Formula 2. For operations requiring a little more time. Boiling point 40 degrees C. Chloroform, 15; petroleum ether, 5; sulphuric ether, 50. Formula 3. For major operations. Boiling point 42 degrees C. Chloroform, 30; petroleum ether, 5; sulphuric ether, 80. It is administered with a mask. The sleep induced is prompt and tranquil, resembling more the hypnotic sleep than ether or chloroform narcosis. There is no cyanosis, salivation nor accumulation of mucus nor consecutive pneumonia. There are no counter indications if the lungs are working normally. It has been said, "He has deprived anesthesia of all its dangers." Meyer and Weidig consider even the small proportion of free ether in his formula a slight menace, and prefer a solution with the chloroform and ether in molecular combination, which requires petroleum ether with a little lower boiling point.—[Dental Review.

Dental Excerpts.

TO SHARPEN HYPODERMIC NEEDLES.—First pass the cleansing wire through so that it will protrude at both ends. Then with corundum wheel in engine, grind off the point of needle and the wire at the same time, then push the wire through from the other end, carrying all débris with it.—[J. B. Spooner in Dental Digest.

FORMALDEHYDE FOR BURNS.—If compresses soaked in a 10-per-cent. solution of formaldehyde are applied to the affected part, it is said that in ten minutes all the pain ceases; continued renewal of the application causes all traces of the burn to disappear, so that not the slightest redness of the skin is left.—[Mod. Med. Science.

TO CHECK FLOW OF SALIVA.—In filling lower third molars, when it is found impracticable to place rubber-dam, the annoyance of excessive flow of saliva may be overcome by the administration of sulphate of atropin 1-120 gr., three-quarters of an hour before appointment. The mouth will be found dry, though not uncomfortably so.—[Dr. H. Otis Loque in So. Den. Jour.

TREATMENT OF ALVEOLAR PAIN AFTER TOOTH-EXTRACTION.—Remove blood-clots from socket of tooth by means of a little absorbent cotton wound on a match, and then syringe the cavity with very hot water, either plain or containing a little carbolic acid. If this does not answer, insert a tampon of cotton or bibulous paper soaked in camphorated phenol or in one of the following solutions:

1. R—Menthol,
Chloral hydrate, aa 4 parts;
Camphor, 2 parts;
Alcohol, 30 parts. M.
2. R—Chloroform,
Alcohol,
Tincture of aconite, aa 100 parts;
Morphine, 1 part. M. —[Medical Bulletin.

ELONGATED UPPER MOLARS.—It often happens that the upper molars are elongated to such a degree as to prevent the use of antagonizing molars upon a lower partial den-

ture. This difficulty can be utilized to the decided advantage of the patient. Let the base-plate be of modeling compound or Ideal, to give rigidity. Mount soft pieces of wax upon the base-plate and have the patient close the jaw naturally. The impression of the elongated molars is made in wax, and this can be duplicated in either Watt's or Weston's metal. Where these teeth are not only elongated, but present an oblique position, this method insures a more perfect occlusion, and mastication even more thorough than if teeth were employed.—[J. A. C., Den. Weekly.

HINTS.—1. I could write six pages instead of six lines on any subject, but I am tired, and I never read or write anything that will spoil a yawn. * 2. Sharpened chisels dipped in oil trim vulcanite as easily as cutting soft chocolate. * 3. If you pack vulcanite warm and wet, it packs clean as well as easy. * 4. Save your eyes—and your patients—by wearing glasses when you need them. Go to an oculist—no one else—and find out if you need them. No man knows the exact condition of his own eyes any more than of his own teeth. * * 5. Nothing better to soften the hands and cleanse nails and fingers quickly than hartshorn ammonia, 20 or 30 drops to a basin of water. Use to clean any blessed thing about your office. Cheap.—[“Lazy Man” in Dom. Den. Journal.

SLIGHTLY ACID MOUTH-WASHES DELETERIOUS.—If the alkaline fluids preponderate in the mouth you do not need a mouth-wash. Whenever the secretion from the salivary glands is slightly alkaline all the time you do not need a mouth-wash, as the teeth will not decay, and the objection to any mouth-wash containing formic or acetic acid is the exceedingly diluted solution of these acids, because you take one-tenth per cent. solution of acetic or formic acid, place it into a tooth and leave it for thirty days, it will leave a finely powdered surface over the whole, showing that it acts energetically on the inorganic material of the tooth. If you place a tooth in a 40-per-cent. solution of formic acid, at the end of thirty days it would only be dull, not destroyed.—[A. W. Harlan, Dental Review.

COTTON POLISHING CONE.—I have often been at loss when finishing a plate with plain teeth to get anything that would polish between the teeth, but have found cotton-batting polishing cones to be just the thing. They can be made as small as anyone may require, cost nothing, cut very rapidly, as they hold the pumice or other abrasive material in the fibers, and can be made to hand in a moment of time. All one has to do is to take a bit of cotton-batting, the size he requires the cone to be, hold it between the ends of the two forefingers and thumb against the point of screw or cone mandrel when running and it will be formed in an instant, then wet with polishing mixture and cut off the small end with scissors. I just happened to strike on it a short while since, and was so pleased with it that I thought it might be of use to others.—[D. V. Beacock in Ohio Den. Journal.

TONSILS AND ADENOIDS AS CAUSES OF MALFORMED MAXILLÆ AND IRREGULAR TEETH.—Wm. A. Mills states that from observation of twenty-five years he has found that any inflammatory lesions in children of 4 to 11 years that obstruct the nasal or oral passages are the chief agents in causing malformed jaws and abnormal alignment of teeth.

A child of 7 brought to him to have a tooth filled for relief of pain in right ear and right angle of inferior maxilla, was found to have almost complete obstruction of the nasal cavities; the face was pale, anemic and haggard. A small cavity in a molar tooth was filled without relieving the pain. Depression of the tongue showed enlarged tonsils almost touching in the median line, from one of which pus flowed out on introducing the depressor, causing relief of the pain. The patient was sent to a rhinologist, who removed the adenoids and reduced the tonsils. The child in six months was a bright, rosy-faced boy.—[Jour. Am. Med. Assn.

SYSTEMIC TREATMENT AS AN AID IN CORRECTING IRREGULARITIES IN CHILDREN.—Systemic treatment has not been dwelt upon as much as it deserves. The regulation of the teeth and the preservation of the interdental spaces are also important factors. I had a case in my practice of a little girl nine or ten years old, where the most alarming state of the

teeth was present. It seemed hopeless that she should escape a severe course of tooth-regulation. She was frail and anemic, and I concluded to prepare for the inevitable by building up the system. I gave her beef extract, syrup of hypophosphites, insisted that the child should take plenty of exercise out of doors, and above all, I directed to be rubbed into the child, morning and evening, large quantities of cod-liver oil. To my surprise in three to six months the teeth seemed to move like magic, the jaws spread out, and in the course of a year and a half all danger of tooth-regulation passed away. Of course, nature might have come to the rescue without the treatment, but it seems to me that the treatment in this case was partially responsible for the change.—[Dr. Head, International.

ALLOYS AND THEIR MELTING POINTS.—The following alloys will melt in boiling water or at a lower temperature:

	Tin.	Lead.	Bismuth.	Cadmium.	C.	F.
Newton's . . .	3	2	5	0	100°	212°
Rose's . . .	3	8	8	0	95°	203°
Erman's . . .	1	1	2	0	93°	199°
Wood's . . .	2	4	7	1	70°	158°
Mellott's . . .	5	3	8	0	93°	200°
Harper's . . .	4	4	7	1	80°	180°

Erman's alloy can be made of equal parts of plumber's half-and-half solder (equal parts tin and lead) and bismuth. Harper's alloy can be made of 8 parts of plumber's half-and-half solder, 7 parts bismuth, and one of cadmium, and can be poured into a modeling composition impression. It is hard enough to withstand the hammering required, and makes a smooth, sharp die.—[Ohio Dental Journal.

THREAD-CUTTING PLIERS.—There is on the market a pair of flat-nose pliers designed for cutting a screw on the dowels of crowns, the better to secure the crown in the root, when either cement or gutta-percha is used for this purpose. Such a pair of pliers may be easily made by any dentist, as follows: A pair of flat-nose pliers are obtained. The temper is taken out of the noses by heating red hot. Holding the noses tightly together by pressing the handles together, a small hole is readily drilled between the noses, about one-fourth of an inch from the end. A screw thread is then cut

in this hole, when the pliers are retempered. By placing the tapered dowel in this threaded hole within the nose of the pliers, and backing the dowel out, a thread is cut on the dowel. This may be done either before or after the crown is completed. —[T. F. Chupein in Office and Laboratory.

DEATH THROUGH SWALLOWING A TOOTH.—The death of Elizabeth Knight, in whose lungs a tooth had been found during the post-mortem examination, formed the subject of a lengthy inquiry by the city coroner, at Adelaide, in December last. The deceased had had all her teeth extracted by Benjamin Wm. Thompson, practicing in King William street, Adelaide, on October 1, when, according to Thompson, one of the teeth “seemed to shoot through the forceps.” “Not being sure if the tooth has passed out of the mouth,” Thompson stopped operating and cleared the mouth of blood with a sponge, and unsuccessfully felt for the tooth underneath the patient’s tongue; “listened to her breathing; everything appeared to be regular, and there seemed to be no obstruction of any sort, and he (Thompson) naturally thought the tooth had gone onto the floor.” The woman shortly afterward complained of a painful cough. The application of the Roentgen rays and the opening of the windpipe failed to discover any foreign substance; but upon the patient’s death a tooth was found imbedded in one of the smaller divisions of the bronchial tube. The cause of death was exhaustion—the result of pulmonary abscess and empyema—due to the tooth being in the portion of the lung structure.—[Australasian Jour. of Phar.

HARDENED AND WASHABLE PLASTER-OF-PARIS.—For the hardening of gypsum a firm in Heidelberg has taken out a German patent on a process which apparently surpasses all those in existence, and furnishes very satisfactory results. Either burnt gypsum is prepared and mixed with the liquid named below, or else the finished articles of hot gypsum, or of mixtures of gypsum and other bodies are impregnated by painting with the fluid. The same consists of a solution of ammonium triborate in water. For this purpose, boric acid is dissolved in warm water and a certain amount of

ammonia is added, whereby a substance really soluble in water and deviating much in its properties from known compounds results. The saturation of the gypsum, or the painting of the plaster articles is carried out into the cold. The objects are subsequently rinsed off and dried. The surface becomes very hard in two days, and insoluble in water, while the induration in the interior advances more slowly. By means of the fluid described, gypsum floors can be hardened and rendered more durable and impervious to the influences of the weather. Saturating with ammonium borate is said to be especially useful on exterior walls of buildings, etc. Experiments have proved an antiseptic action of the liquid.—[Scientific American.

A CASE OF COCAINE POISONING.—Recently while getting ready to set a crown on the root of a central incisor, we placed a mat of paper about the size of a copper cent on the gum, saturated with a four-per-cent. solution of hydrochlorate of cocaine, and in about five minutes the patient was poisoned. She became limp and was not conscious of anything for four hours. It was with difficulty that she was made to walk, and she talked incessantly and incoherently.

She was given one nitrate of amyl pearl, and was made to inhale stronger ammonia, and was given five cups of strong black coffee. The quantity of the solution used was about four minims, some of which was undoubtedly swallowed. The recovery was sudden and complete after four hours of incessant labor. No after-effects except some distress in the stomach on account of the large quantity of coffee. The next day she did not remember anything that occurred from the time she sat down in the chair until she was taken to the chair to go home. There was no perceptible action on the pupils of the eyes, no perspiration, some drowsiness and considerable difficulty in locomotion. Speech constant and pronunciation correct. No action on the bowels or kidneys; respiration and pulse accelerated. Female, age about fifty.—[A. W. Harlan in Dental Review.

College Notes.

THE U. of C. College of Dentistry began its seventeenth annual session on September 5th, with 47 Freshmen enrolled. New additions to the staff of lecturers and demonstrators are: F. W. Harnden, D.D.S.; Oscar Tobriner, M.D., D.D.S.; C. H. Bowman, D.D.S.; Bertram C. Boeseke, D.D.S.; Edmond D. Keeffe, D.D.S.; J. A. Jeffrey, D.D.S.

At the annual meeting in Omaha, on August 27th, the Dental Department of the College of Physicians and Surgeons of San Francisco, was admitted to membership in the National Association of Dental Faculties. The news was forwarded to Dr. Morfiew, president of the faculty, by telegraph the same day, and before night arrangements were made for a grand jollification.

Laughing Gas.

AT THE DENTIST'S.—You'll be a good little girl and take the gas won't you, Kitty?

Kitty.—Mamma, mayn't I have the electric light?—
[Punch.

A "PAIN SAVER."—Mr. Levi (calling on dentist at 11 P.M.).—Oh, doctor, I have der tootache! der tootache! I vants to have him pull out; how much it cost?

Dentist.—With gas, \$1.50; without gas, \$1.00.

Mr. Levi.—I vill come back in der daytime, doctor.

HE WANTED TO KNOW.—Mrs. McLubberty.—Here's some pills, Murty, thot Mrs. Hogan was after sindin' over for yez. She says dhey'll kill or cure yez.

McLubberty (who is ill).—Begorra, did she say which dhey would do foorst?—[Puck.

AN OBLIGING PATIENT.—Dr. K. (to young lady patient after an examination in the examination chair).—Just take the chair in the operating room.

Patient.—Certainly, doctor. (And the frail little lady tries to remove examination chair to operating room).

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

WORK FOR THE COLLEGES.

As the time for opening the coming sessions of our dental colleges approaches we cannot refrain from expressing the hope that some things not printed in their curricula may be taught the students who assemble within their walls.

Judging from questions asked us by even second and third-year students, we are led to believe that the art of thinking, or reasoning intelligently, is not sufficiently developed by the present course of study and didactics. The student who believes a thing is so simply because his teacher says so, has laid but a poor foundation for the knowledge he thinks he is acquiring. Let students be taught to reason and to think, and much of the college work now looked upon by them as non-essential drudgery will prove a recreation and a pleasure.

In dental journals and societies there is a great deal written and said about the code of ethics, but how rarely students hear it mentioned during their college course. Let it be taught in our colleges and its principles driven home by constant repetition; let every student be led to see the value of following its precepts, and to see, also, the depth of degradation to which one must descend who violates its laws, and so disgraces his college, his profession and himself. Let him be taught also the true value of dental society work; to know that it is the duty of every practitioner to join and help sustain, by prompt payment of dues, attendance, and contributions both clinical and literary, both his local and State societies. Let him be led to realize the fact that if even one hour in ten spent in attendance at society meetings and clinics is of practical value to him he is well repaid for all the time and money his membership costs.

Let every student also be taught to realize the value of the professional training he is about to enjoy, not only from a personal standpoint but as a means for placing him far in advance of the vast majority of his fellows, as a valuable member of the body politic, and as a teacher and leader of his fellow men, and we firmly believe that he will be a better dentist and better citizen than if his attention is not called to the facts we mention. A little teaching outside the books and laboratory may so broaden the mental horizon of many a student, as to make his view of life broader and better and more profitable than it otherwise can be, and make his life-work a blessing rather than a blot in the great scheme of the universe, of which he is to be an active integral part.

A PLEA FOR THE HIGH STANDARD.

It is our opinion that if those members of the dental profession, college faculties and boards of examiners who think a common-school education a sufficient preliminary requirement for entering the dental profession were to be called upon to edit some of the "original" articles sent to our journals for publication, they would be convinced that even this low standard has not always been demanded, and would soon be loudly clamoring for a law making it necessary for every applicant for admission to our profession to possess a high-school certificate or even a college diploma.

It is positively pitiful to see how grossly ignorant some contributors are, and when we have practically rewritten such articles, placed subjects and predicates in what we suppose were intended for sentences; made the text follow the subject as nearly as possible, virtually doing all the work our correspondent thought he had finished, and even then perhaps missing almost entirely the idea he wished to convey, we wearily ask ourselves how can it be possible for anyone to oppose the adoption of a high standard of preliminary requirements? and how long must the literature of the profession suffer from the ignorance of its contributors?

PERSONAL

DR. R. B. COCKRILL, of Fresno, spent a few days in the city recently.

DR. C. W. BARR, of Ashland, Or., spent a few days in the city during the latter part of August.

DR. WM. G. LENTZ, of Phoenix, Arizona, has been spending a month in northern California and Oregon.

DR. F. BURTON and family were down from Stockton during the month to enjoy a few days of the ocean's breezes.

DR. MONTGOMERY THOMAS, driven from Fresno by the hot weather, has been seeking rest and recreation in the city.

DR. H. C. BAGBY, of Santa Maria, Cal., passed through San Francisco last week on his way to New York on a visit.

DR. A. T. GALBREATH, of Truckee, Cal., was in the city on his annual trip looking for new ideas and laying in supplies.

DR. J. E. HUTCHINSON, of Hilo, H. I., passed through San Francisco on his way to Chicago, where he will take a post-graduate course.

DR. J. L. ASAY is now Superintendent of the infirmary of the Dental Department of the College of Physicians and Surgeons of San Francisco.

DR. J. W. TODD, of Pittsburg, Pa., passed through San Francisco on his way to Honolulu; H. I., where he intends locating, if the field looks favorable.

DR. S. P. COKE has returned from the Klondike, where he located some valuable mining claims. The Doctor will resume practice in or near San Francisco.

DR. CHAS. BOXTON, dean of the Dental Department of the College of Physicians and Surgeons, who left here as major in the First California Volunteers, has been promoted to lieutenant-colonel for bravery in leading his men before Manila.

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Original Papers.

REVIEW OF THE WORK OF PROF. GREENE V. BLACK, M.D., D.D.S., Sc.D.

BY J. FOSTER FLAGG, D.D.S., SWARTHMORE, PA.

[PART SECOND.]

THE *second* paper of Dr. Black's series appeared in the June *Dental Cosmos* of 1895, and is devoted to the consideration of "The Force Exerted in the Closure of the Jaws."

Although the records of the ingenious instruments used, called respectively the gnatho-dynamometer and the phago-dynamometer, possess a certain degree of interest, and recall to those of us who remember them the experiments made in a similar line by Dr. John D. White some forty years ago, and especially his 250 pounds for the crushing of the shot, and, although Dr. Black tells us that the gnatho-dynamometer has "become a practical instrument" at his chair, it has yet seemed to me that so little has its employment been indulged in generally by members of "the profession," and so usual is it that our patients are perfectly able to masticate such food as they indulge in, and so comparatively easy is it to enable them to do so when, from any reason, a comfortable and sufficient mastication is interfered with, that any further discussion of that portion of his contributions is needless.

I shall, therefore, pass to the consideration of his *third*

NOTE.—The editor and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

paper published in the *Cosmos* for July, 1895, under the caption of "Filling Materials," in which, after a pretty engineering prelude in reference to a railway bridge over a stream of some considerable magnitude, an entire page is preface for the conclusion that "gold and amalgam are the only two filling materials in general use that are *supposed* (the italics are mine) to be able to endure "the stress of long-continued mastication."

I cannot but suggest that as these two materials have not only been accepted as occupying this place among filling materials, but have been subjected to clinical usage in this regard for considerably more than half a century, and having *thus been proven* to be the only materials worthy to be recognized as possessing this attribute, it seems hardly worth while to have devoted so much space to the establishment of an entirely undisputed point.

But from this point onward the planks of this "wonderful" engineering effort seems to me to increase in worthlessness until it appears to be little less than folly to give them the least attention, but so extended has been *favorable* comment upon this "work," and so unanimous has been the evident acceptance of its "solidity" that I have felt that, for the possible good of "the profession," one voice, at least, should be heard in absolute condemnation of it all, from the beginning to the end.

First. I deny that experimental work upon filling materials bears any such relation to railway bridges or buildings as to require, or even desire, that such construction should enter at all into any consideration. Indeed, it would be difficult to find any two results which are made under auspices less consonant, or which are to subserve purposes more completely unlike, or which are to endure under conditions more entirely at variance; I should therefore regard it as perfectly reasonable to expect that so-called "work" thus commenced could not but eventuate in a termination completely valueless.

Second. In amalgam research the experiments of Prof.

Hitchcock, done twenty-five years ago, serve as unquestionable proofs that "the hearty support of manufacturers of dental goods" is at least a doubtful basis upon which to erect a superstructure, and yet this "investigator" offers thanks for this, and acknowledges the receipt of samples of "about eighty different alloys."

A number of formulæ were given, thus enabling the investigation to be conducted on purely scientific lines!

And this is the "science" which has been so gratefully accepted and so effusively applauded.

But as these formulæ were "trade secrets" they had to be "respected," and thus the gentleman starts out not only handicapped by this, but even more so by the conviction, which he expresses, that not only he but "the whole dental profession are under obligations to those of the trade who have so generously supported this effort." What comment can be made upon such belief as this? Had the "effort" of the "New-Departure Corps" been founded upon such generosity I cannot think that the "whole dental profession" would have been benefited in any large degree; while, as it is, I think I can safely assert that every item of truly reliable information possessed by dentistry *today* regarding, not only amalgam, but every plastic filling-material which it uses, except porcelain, was given it from the work of the "New-Departure Corps."

Feeling that I am thoroughly conversant with all the work which has been done, and with all the materials which have been offered in connection with plastic work, I make this statement without fear of contradiction, and as a deserved tribute to an earnest, long-continued and satisfactory line of work, together with the unstinted liberality with which results were given by the members of that organization.

That work, so far as amalgam is concerned, was done from the *solid* basis of carefully *purchased* samples of alloys as offered for sale, together with such accurate analyses of these as would be made by mint metallurgists.

How very different from this is the published basis of the "investigations" which are under consideration. Samples by the score are generously given by their makers, and formulæ for these accompany the liberal donations. These are gratefully accepted. The recipient, together with the *whole dental profession*, is acknowledged as *under obligation*, and the "investigation" proceeds.

For myself I recognize *no obligation*; on the contrary, I think any careful, properly qualified experimenter would naturally regard such aid as of very doubtful value and as likely to lead in the direction of incorrect conclusions.

And now, at once, an attribute of amalgam is noted which seems to have so impressed the gentleman as to have completely filled, for the time, the investigatorial heavens. This attribute was called the "flow." It was shown that *under stress* a mass of amalgam would gradually develop a molecular yielding or creeping out from under the load.

So much "stress" has been laid upon the *value* of this discovery that it seems important that decided notice should be given it that its worth or its worthlessness should be a settled question.

1st. Amalgam has been used "by the ton" for filling teeth, and for more than fifty years, and of so little moment has this attribute proven to be that *it never has been noticed*.

2nd. It is requisite that direct, circumscribed and rather decidedly continuous pressure be borne upon the material in order that indications of this "flow" shall be apparent.

3rd. It is safe to say that not one filling in twenty is so placed as that any such "stress" can be brought to bear upon it, even during the incidental efforts of mastication, much less for any continuous pressure.

4th. Again, the large majority of such fillings as will permit even this occasional impact are retained within cavity walls of such strength as that this "spreading" of the amalgam would be insufficient to do any harm; while,

if such "flow" occurred, it *might possibly* be beneficial by forcing a closer contact between fillings and walls; but no such result has ever been noticed.

5th. While the experiments in connection with "flow"—albeit conducted under conditions which would never exist in the mouth—seem to demonstrate that such amalgams as were "accepted" from the results of New-Departure Corps work had the minimum of this peculiar attribute, it was by no means proven that the amalgam possessed a detrimental degree of it when made from that formula which gave the greatest "flow" (40.16) made from silver 48, tin 48, gold 4—a formula which I think no one would ever use.

6th. In this paper (*Cosmos*, July, 1895,) on pages 559 to 567 (nine pages!) there seems to me to be such a mass of words enveloping such peculiar statements as would render necessary nine pages of review for appropriate notice, but I think a single page may contain sufficient comment to render the other eight pages superfluous.

First. Experiments were begun with an alloy of silver, 47.06, tin, 51.76, copper, 94, zinc, 24,—an alloy which I believe—as the result of hundreds of melts made by experts—could not be duplicated in less than fifty trials, and then only *by luck* rather than by skill!

Second. I hold that the objects for which the several metals are used in compounding amalgam alloys for filling teeth have been so definitely settled during more than twenty years of careful experimentation and patient clinical observation as that it may be regarded as *determined* that the two metals copper and zinc would *never* enter into the composition of any one alloy; therefore, I should consider any experimentation with such amalgam as valueless.

Third. On pages 560–561 a looseness of methods from packing with "broad, serrated point" to "squeezing the mass in a vise"—methods which *have been demonstrated* at lecture-stands to classes, and to bystanders at clinics, for many years, as beneath criticism—is conjoined to an equally scientific looseness of comment regarding the decided preference of hand-mixes over mortar-mixes (after fifty years of

cleanly, acceptable using of mortars, to say nothing of other demonstrable advantages); also, regarding the "wringing out by rolling the mass in muslin" and "then discarding the ends of the mass" (not mentioning how much, or why!) in all of which, everything is so at variance with the ideas of all workers of amalgam *except those who never can make fillings which they feel are perfect, and whose amalgam work is "so unsatisfactory,"* that such comments as I have heard or read have been only derisive, which opinions entirely coincide with my own.

It is with much satisfaction that I know of several hundreds of amalgam workers, who do not manipulate at all as does Dr. Black, and who write me, as year after year passes, of the *great satisfaction* they have in the "comfortable saving of the frail, soft teeth of poor structure, with properly compounded and properly introduced fillings of amalgam."

Fourth. Pages 566 and 567 persist in work on the silver-tin alloys, but with no recognition of the *fact* that all this is ploughing old, wornout land, giving us only the inference that those who continue to use amalgams in connection with which we find the most "crevicing" *will have the most!* But in this connection the "*black ditch*" seems so to worry the investigator as that to him it appears as a "monster"!

Now, what is this "monster"? It is a result which accrues, with a certain degree of frequency, after fillings have been in service for periods of from two or three to eight or ten years. The remedy for this is to fissure-drill around the edge of the filling and "cold-solder" a little freshly made amalgam to the filling, an operation by means of which the defect of from two to ten years is repaired in from two to ten minutes! Truly, if the "monster" which Hercules was sent to destroy had been such an one, a six-year-old boy would have been "equal to the emergency."

7th. It would seem, from these various considerations, that in the great "stress" which has been devoted to this "flow" a very large mountain has been made out of a very

small molehill, and that, practically, it might be permitted to remain, *as it always has been*, an entirely unimportant factor in the question of amalgam work.

"Flow gently, sweet Afton"; amalgam "flow" on!
Till the fillings and teeth and the patients have gone,
To that "traveler's bourne" whence they'll never return,
As hundreds of thousands in comfort have done;
Flow gently, amalgam; "flow" on!—"flow" on!"

IS THERE NO REMEDY FOR DISTORTED COUNTENANCE CAUSED BY POORLY CONSTRUCTED ARTIFICIAL DENTURES?

BY DR. A. M. BARKER, SAN JOSE, CAL.

[Presented before the California State Dental Association, June 22, 1898.]

THE fact of almost daily coming in contact with people, to whom perhaps nature has not been unkind in formation of face and feature, but who, on account of low-grade texture, neglect or whatnot, are compelled to resort to artificial dentures, has provoked the question: Is there no remedy for the too-often distorted countenances caused by misjudgment and insufficient guide in the construction of artificial dentures?

How often do we see on the street, in our offices and everywhere that people congregate, those who, through the inability or misjudgment of their dentist, are compelled to wear a denture upon which has been placed teeth often many shades too light, or too dark, as the case may be; or perhaps very small teeth where there should be large ones; or, if you please, the size and color may often be suitable, but the contour of the face is distorted by their being too full, or given the appearance of no teeth at all on account of not being full enough.

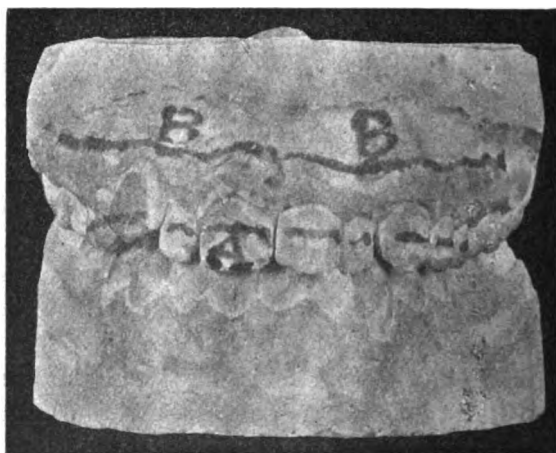
That this condition of results does exist I think no one will attempt to gainsay. That it needs a remedy is just as certain. The question how to overcome this blemish from the faces of many of the thousands who are wearing this sort of denture will be the object of this paper.

I am aware that there are many wise men who would

answer this question by saying that if the dentist thoroughly understood the anatomical structure of the face and the relation of the different muscles, one to the others, together with the complexion, color of hair, etc., he would need no other guide to produce the best results; also, that he would need naught else but models of upper and lower edentulous jaws, together with the presence of the patient, to select teeth of the proper size and color, and arrange their position or artificial denture.

That the above result may be obtained in a small percent-

FIG. 1.



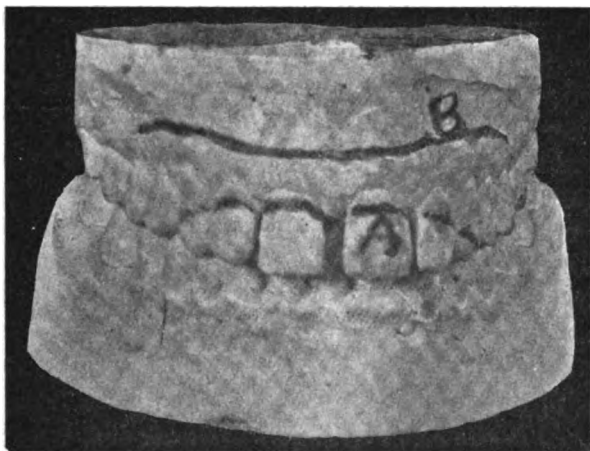
A Normal Occlusion.

age of the cases in the hands of the artist I will agree; that it may be approximated at the hands of a greater number I will not deny, but that the great majority of dentists with such insufficient knowledge will fail in reproducing the natural color, size, contour and length in some one or all of these I maintain; and feel confident that after a careful study of cases coming under your care for a few months you will fully agree with me, and that a remedy is sadly needed.

From my observation in perusing dental journals and other dental literature I do not remember having read or

heard of a paper having been written upon this very important subject offering suggestions other than to be guided by complexion, color of hair, physical development, and what common sense and judgment the operator may possess. That the average dentist depends upon these insufficient means to guide him, labors hard and, alas! too often is weighed in the balance of public and professional opinion and found wanting, is a fact, I regret to say, only too well-founded. That we all make these mistakes and err in judgment is certain, while at the same time we

FIG. 2.



A Nearly Normal Occlusion.

are striving for the ideal, and, as I have before intimated, fail in whole or in part, precludes the necessity of going further with these charges, and I shall now make a few suggestions, and attempt to name a plan which if carried out by every practitioner would in the course of time effectually eradicate these dental eye-sores from our midst, and give our patients just cause to appreciate our handiwork. I propose to avoid the disfigurement of an otherwise comely countenance by making models of every adult mouth which comes under my care while the natural teeth are intact, said models to be laid away among the patient's personal

effects, and as carefully guarded as a government bond or deed to a piece of property. The model to be properly labeled with whatever memoranda seems pertinent, or what would in any manner aid whoever might in after years be called upon to construct artificial substitutes.

A porcelain tooth the color of the natural teeth should be imbedded in the plaster model, thereby avoiding the possibility of losing the color.

I have prepared models of three adult mouths which I have previously caused to be passed around, and which are now before you, and which are typical of mouths to illustrate my ideas.

Figure No. 1 shows model of a practically normal occlusion, and yet presenting an arrangement of teeth which no human being could foresee and reproduce from the edentulous mouth presented in after years, without such assistance as would be rendered by a model of same jaws while the natural teeth were in position, together with such data as are suggested in the different exhibits. I ask in all sincerity, how could the most expert foresee the natural peculiarities of the case without the information contained in the models? There is but *one* answer, and that is, they could not. Therefore, I claim it is in no wise beneath the dignity of any man to provide and accept such means to guide him in the construction of artificial dentures.

Figure No. 2, although showing a nearly normal occlusion of the teeth, presents at the same time an arrangement altogether different from that of exhibit No. 1, and equally as difficult to anticipate in a reproduction, guided only by the edentulous mouth. Two peculiarities present themselves in figure No. 2. The first is the long and hook-shaped superior central incisors, and the second is the unusual space between the same.

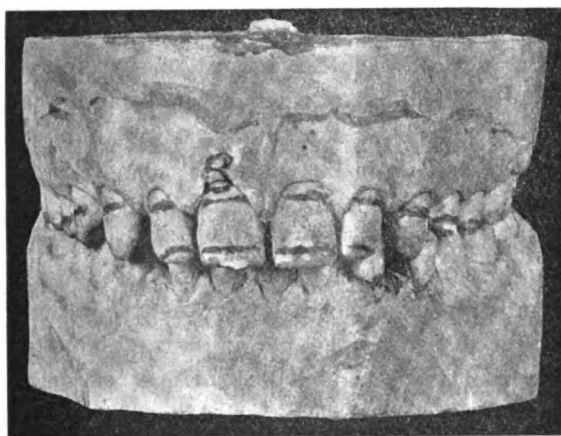
Now whether or not you might see fit to improve upon nature in this case cuts no figure. The fact remains that, with the information presented and accurately recorded in these exhibits any practitioner could render better service to his patients, and thereby add to his reputation as a skill-

ful dentist, and to his own satisfaction for having built upon the ruins a structure equally as pleasant to look upon as that which nature first planted there, thereby doing away with the repugnant-looking countenances we are compelled to face of persons wearing artificial dentures made so full that when they attempt to smile the lip is nearly split in the effort.

In figure No. 3 I present a model showing a malocclusion (that of the lower jaw), presenting difficulties with which every practitioner has had more or less to do, and one which offers in reproduction perhaps the hardest problems to solve.

Although my purpose in this paper is not to attempt to

FIG. 3.



A Malocclusion.

prove that in constructing artificial dentures for such a case that the articulation should be duplicated, I will assume that with slight modifications it should be and claim that to approximate such a case in reproduction would be impossible without the knowledge recorded in the models.

As will be noticed by reference to the model presented, there are two lines drawn across the anterior portion of same, the one indicating the position of upper lip as showing the amount of exposure of superior teeth with the lips

just parted, and the other, showing exposure while laughing. This information is of unquestioned value in determining length of artificial denture.

I will now mention some of the main points which the profession would be compelled to adhere to in order that the ideas presented here might be carried out.

It would be to inquire of every adult patient whether or not they have ever had models made of their mouths, as above indicated, and, if not, to explain the advantage of having the same. Also, the importance of carefully preserving them, so that in event of their losing their teeth the dentist called upon to furnish artificial substitutes may have access to the information, which would be absolute and effectually do away with those abnormalities above referred to.

Some might say, "Oh, I haven't time for making models of normal jaws." I answer, yes, you have; and you could not do your patient a better turn, nor earn for yourself a more deserved fee than by securing such models and faithfully recording such information as may then and there, and only then and there be attained.

In conclusion, allow me to say, that for one to fully appreciate what the above suggestions mean by way of aiding in the construction of artificial teeth, let him when his next patient presents himself for full dentures imagine that to assist him in getting the original size, shape, color and arrangement of teeth the patient brings beside the edentulous jaws in his or her head models prepared years ago when the natural teeth were intact. Here would be a condition of affairs greatly to be desired, viz., that instead of guessing at color you would have it exact; instead of guessing at the size you would have that exact; instead of guessing at the length you could easily approximate that; also any peculiar modification of arrangement could be easily duplicated if desired. For any practitioner to claim that he or she could produce equal results without such aid, as another could with it, would be, I think, to juggle with the truth.

THE IMPORTANCE OF ESTABLISHING A TECHNIC AS WELL AS LITERARY STANDARD FOR COL- LEGE ENTRANCE.

BY S. H. GUILFORD, D.D.S., PH.D., PHILADELPHIA, PA.

[Read before the National Association of Dental Faculties, August 29, 1896.]

THE good results accomplished by this association in its sixteen years of existence are not only universally conceded, but will ever remain as a proof of the wisdom of its organization and its general endeavors to elevate the standard of practice. It was realized that this could only be done by sending into the profession men better equipped for practice than the majority of those entering it. This required certain changes in the prevailing methods of college instruction, some of which have gradually been brought about while others are in course of development. The association first addressed itself to lengthening the course of study. The recognition of five year's practice as an equivalent of one years' course in college was done away with and an invariable two years' course demanded.

Then came the lengthening of the winter term from four to five and subsequently to six months, after which another year was added to the college curriculum.

With all these advancements, however, beneficial as they were in their results, it was found that a proportion of the yearly graduates were not up to the standard demanded either by the public or the profession, and another change became necessary to remedy the condition. At the time of the organization of this association, and for many years afterward, there were very few dental colleges that inquired into the earlier educational training of those who applied for admission. It seemed to have been taken for granted that anyone applying for admission must have had sufficient mental training to enable him to grasp and pursue the various studies of the curriculum. This proved to be erroneous, for it was found that while a student might, by close application, manage to pass his examination in the theoretical branches, he did not have that general grasp of

these subjects which was necessary to make him a well-rounded man.

Following this discovery came the adoption of entrance requirements, which necessitated a certain amount of mental training in the schools before the candidate could be allowed to begin his collegiate studies. These requirements were very moderate at first, but were gradually increased until they equaled the completion of a full grammar course.

This far the plan had worked admirably, principally because it was gradual. Two years ago, however, a further advance was decided upon by which in the course of a few years the entrance requirements were to equal completion of a high school course. This change was so radical in character that it worked a hardship upon many students who were not able to meet it, and who in consequence were debarred from college entrance.

As a result of this, one year ago the latest advance was annulled, and the requirements reduced to their previous standard. This retreat from an advanced position was regretted by many schools, and the question of some advancement from our present standard will doubtless come before the association at its present meeting.

In anticipation of this your essayist decided to prepare this paper for the purpose of presenting certain views upon the subject, and offering them for your consideration.

As previously mentioned, the raising of the entrance requirements to equal a completed grammar school course has proven itself a wise act, and none have cause to regret it. With less preparatory training it was found that the student's mental faculties had not been properly awaked nor correct habits of study formed, and that he was in consequence placed at a disadvantage in trying to acquire a knowledge of at least some of the more abstruse subjects which he was expected to master.

In view of the fact that the advancement to the present standard has worked well, the question naturally arises as to whether a further advancement would not be advisable, and, if so, what form it should take. Strange to say, we

have thus far been viewing and treating the subject of preliminary requirements from a single standpoint. All of our discussions as well as our enactments have dealt solely with the mental acquirements and possibilities of the proposed student, entirely overlooking or ignoring the equal or more important feature of manual dexterity or mechanical bent.

All of us are fully aware of the absolute importance of mechanical talent in the practice of our profession, and we are equally cognizant of the fact that unless this talent is innate it will always be lacking, for it cannot be acquired. No amount of training and instruction can develop a skillful mechanic out of one who lacks the mechanical instinct. If this be so is it not important that we, as teachers, see that those who place themselves under our care for preparation for their life-work are possessed of this necessary qualification? In former times, before the wave of progress had swept across the beaten path of dental education, when the student received his preliminary, and at times the greater part of his dental training in a perceptor's office, or rather laboratory, it was an almost universal custom for the practitioner, before accepting a student, to ascertain whether he possessed a natural bent in the line of mechanics.

This was done by inquiring into the young man's turn of mind, his fondness for tools and their employment in constructing some of the simple mechanisms so necessary to the complete happiness of boyhood. In addition to this it was customary to accept the student for a certain period upon probation, to still further ascertain his adaptability to his proposed life-work.

While in these later times we recognize the shortcoming of our predecessors in not demanding at least some educational requirements from their students, may we not at the same time take a hint from their methods, and incorporate some of their requirements into our own? In other words, has the time not fully arrived when we should demand

mechanical talent as well as scholastic acquirements as preliminaries to entrance upon the study of dentistry?

It would seem that in this matter, as in many others, we have been rather blindly following in the footsteps of our sister profession, medicine, not fully appreciating the differences that exist between them. Dentistry occupies rather a unique position among the sciences and professions, in that to be of the greatest service to mankind the practitioner must necessarily be possessed of considerable manual dexterity.

This is not required of the lawyer, the theologian, or the physician in ordinary practice, for their success depends mainly if not entirely upon the development and use of their mental faculties. For one undertaking the study of any of these professions it is therefore quite proper that the only qualification demanded should be a scholastic one.

Should the student of medicine prove to be possessed of mechanical talent, he will, after graduation, naturally drift into the special practice of surgery, which will be more to his taste, and afford him a better field for the employment of manipulative skill. Should his taste not run in the mechanical line, he still has in the domain of general practice and some of the specialties, a large field for successful effort.

With us it is different. To properly serve the needs of his patients the dentist must be skillful with tools, for so large a part of his daily work is manipulative in character. If he lacks this skill he must prove a failure, for in the practice of dentistry there is no place for the employment of the mental faculties alone, as there is in medicine.

The vocation of the instrumental musician bears some little resemblance to our own in that it requires for its successful pursuit not only the development of the mental and esthetic qualities, but an absolute dependence upon manipulative ability. Without the latter the former quality would be of no avail. A teacher of instrumental music would probably prefer to have as his student one with a liberal education, for he would add luster to his chosen

calling, but he would certainly not accept or retain as a pupil, no matter what his literary attainments may be, one who was lacking in technical ability or possibility.

Why, therefore, should we do less?

The dentistry of today owes much of its progress and high standing to the class of men who entered it from thirty to sixty years ago under the private studentship system. Almost without an exception they were men possessed of a high order of mechanical and inventive ability, and they were so because they were selected from the mass by their preceptors.

It therefore seems to me that it would only be the part of wisdom for us to so amend our requirements as to include manipulative ability, and where this is lacking to reject the student and advise him to take up some other calling. It certainly does not seem just to accept a student who is by nature lacking in that quality which is absolutely essential to his success in practice.

With our greatly improved methods of systematic technic instruction we have certainly accomplished good results with the material given us, but how much better might have been the results with the material properly culled. Many students, as we all know, manage to work along through college, performing their allotted tasks and passing the required examinations, who we are morally certain will not be successful in practice because all that they accomplished was performed in a labored way, without any display of actual skill.

Are we just to them and to the public in permitting this? Should we not discover the lacking quality before accepting them, or find some way of discovering it in the early part of their course, and kindly advise them to change their vocation?

If by some extra effort on our part we were able to develop skill where natural ability is lacking, the conditions would be different, and we would be relieved from the necessity of considering the question; but, unfortunately, we cannot grow the plant where seed or soil is lacking.

The question now arises: What shall the mechanical standard be, and how may it best be incorporated with the other requirements? This is not for me to answer. It is a problem, and its solution will require the united wisdom of the members of this association.

By way of suggestion, however, I would offer the following:

1. The student should be assigned a desk or bench in the laboratory, furnished with the necessary tools and material, and be given an appliance or device which he is to reproduce as accurately as possible.

2. The task assigned should be such as to preclude the probability of his having done work of exactly similar character before, so as to guard against mere automatic repetition.

3. The ordinary laboratory processes, involving no special skill, such as repairs or additions to vulcanite plates, should be excluded.

4. In cases where the candidate has had no experience in the use of some of our special tools or processes, such as soldering, swaging, etc., the test should be simple in character, and might consist in requiring him to reproduce from a block of wood, by means of saw, file and penknife, some geometrical form, as a cube, pyramid or rhomb.

5. In cases where the applicant has had some laboratory instruction or practice before coming to college, the test should be a little more severe in character. Inasmuch as regulating appliances are so varied in character, and often combine a number of different manipulations in their construction, such as filing, bending, soldering, etc., the construction of one of unusual design would probably furnish the best all-around test of ability.

6. During the test the student should be isolated until the task is completed. A competent demonstrator should watch the progress of the work from time to time, so as to form an opinion of the candidate's handiness with tools but should offer no aid, even in the way of suggestion.

COLOR BLINDNESS: ITS BEARING ON DENTAL OPERATIONS.

BY DR. W. J. PRATHER, FRESNO, CAL.

[Presented before the California State Dental Association, June 23, 1898.]

IN presenting this paper to the Association, I shall not attempt anything very elaborate, or give all that has been said on the subject by advocates of the various theories, but give a brief outline of the more prominent points.

Attention was first called to the subject but a little more than a hundred years ago by a chemist in England, named Daulton; he being color blind, so that the affliction is sometimes called Daultonism.

In more recent years, since the days of railroads, the subject has been further brought to view by the serious mistakes made by railroad operatives in not distinguishing correctly the various colored signals used on the roads and switches, until now on most roads the managers require all applicants for positions as operatives to have their eyes examined by a person appointed for that purpose, so that now no man is employed whose eyes are defective as to colors used for signals.

Total color blindness is extremely rare, while partial color blindness is very common, being placed at four per cent. I recently saw a statement that out of five thousand persons examined in England by authority of railroad managers, one hundred and eighty were color blind, even as to the marked difference in the colors used.

The various writers on color blindness are not agreed as to the cause of the defect, some holding to the young Helmholtz theory, which assumes that "there are three fundamental or foundation colors, namely, red, green and violet; and there are in the retina three species of fibers corresponding to these three primary colors."

"Each one of these species of fibers is set in action by all kinds of colored light, but to a different degree of intensity," according to their strength, so that if the red set of bodies are deficient, only the green and violet are seen;

so, also, with the others. When any one of the three is defective or lacking only the others or their combinations are seen. A red-color blind person looking at red sees only a modification of green, etc.

The Hering theory starts with the assumption that there are four foundation colors, namely, pure or primitive yellow, first pure red, pure green, and pure blue. Commencing with an analysis of the sensations which we have in looking at a color "most colors excite in us a mixed sensation; thus in orange we see a certain amount of red; another sort of yellow again has a tinge of green," etc. "There is one in which we can perceive no other color besides yellow; this is the pure or primitive yellow."

Besides yellow, he places pure red, pure green and pure blue as primitive colors; thus we see that the Hering theory places violet among the mixed colors. The Hering theory assumes that there are at the termination of the nerves in the retina bodies "visual substances" in which light causes chemical changes. I don't believe it; such changes may be of two different, and, indeed, opposite sorts, the visual substances being either decomposed ("disassimilated") by the light. "If pure red and pure green light falls at the same time upon the same spot of the retina, it depends upon the proportion between the two whether disassimilation prevails or assimilation; the resulting sensation consequently is either red or green, but never both together."

The absence of the red-green visual substance causes red-green blindness; absence of blue-yellow substances, blue-yellow blindness; the former is found to be by far the most common.

Mrs. Franklin accounts for red-blindness and the green-blindness by supposing that the differentiation of the *primary gray* visual substance has first led to the formation of a blue and a yellow visual substance, and that the latter has subsequently been differentiated into a red and green visual substance.

"Color blindness is readily explained by supposing that

the second differentiation has either not occurred at all, or has taken place in an imperfect manner. It is, in other words, an arrest of development.

"In a recently developed theory by Ebinhaus a physiological importance in relation to vision is attached to this substance in connection with the other substances of a hypothetical character. It should be borne in mind, however, that at present there is no proof of the existence of any such substance.

"That a center for color vision distinct from the visual center exists in the cerebral cortex is rendered probable by the occurrence of hemianopsia (an abbreviation neuter, half-halved,) for colors, and also by the experiments of Heidenhain and Cohn on the influence of the hypnotic trance upon color blindness" (this last is taken from a late text-book of physiology); just what the center, or substance, or body, for color vision is is not yet demonstrated. It is found by tests that a large percentage of people are unable to make a distinction between even the strong colors, much less being able to separate those of slightly different shades of the same primary colors.

Whatever the cause of color blindness may be, no treatment of the eye or artificial appliance, in the way of glasses, can avail to correct the defect; it remains through life.

If, as we have seen, the percentage of persons that are color blind is four or over, as tested with the strongly distinct colors used by the railroad examiners, what may we expect when it comes down to the fine shades of colors, as seen in the human teeth, when the teeth are sound and with a healthy pulp, to imitate which, artificially, has taxed to the utmost the ingenuity and skill of manufacturers of artificial teeth. When it comes to operating on the teeth in the mouth the ability to distinguish the slightest difference in color should be more acute. Without that ability, it matters not how learned the dentist may be, how much experience he may have had, or what ability he may have in the use of instruments, he *can never* be a good dentist.

A slight change of color may indicate a dead pulp in a

sound tooth; a very slight change of color may show the loss of some constituent of otherwise healthy dentine or enamel; the ability to determine by the color just where the perfect and imperfect tooth substance meets is all-important, if the operation is to be perfect.

Many persons go through their lives and never find out that they are color blind and, moreover, would be offended were they told of the defect. Sometimes it is brought to their knowledge by their making some grave mistake, as in the case of the tailor who wanted to mend a black coat with a patch of red cloth.

No young man or woman should ever even commence the study of dentistry until they have had their eyes examined very thoroughly as to color sense.

For a scientific examination of the eye for color blindness the spectrometer (or spectroscope) should be used; but for all practical purposes, skeins of slightly varying colored wools, strips of colored paper, or bits of colored glass may be used for such tests. From my experience too great stress cannot be put on the necessity for perfect color sense in the eye of the dental operator, and if, by this little paper, I may arouse or quicken the interest of the profession in the subject, I will have attained the object intended.

DO WE KNOW IT ALL?

BY G. ALDEN MILLS, D.D.S., NEW YORK, N. Y.

[Presented before the California State Dental Association, June 23, 1896.]

WE are living in days when, as it was said by the late Dr. W. H. Atkinson, "it will not do to call any man a fool, when he shall make a claim to knowledge that may excite the credulity of the imagination." The Doctor said, "Let him have the opportunity of proving himself. What can be demonstrated everyone will admit; a demonstration silences all cavil. It tells its own story."

During the year 1897 Dr. J. Leon Williams, of London, gave us something so near a demonstration that little that has weight with the reasonable mind has come to the front

that aims to refute anything that he has shown us by his marvelous definition of micro-photography. This has been so emphatic in the true portraiture of the agents engaged in the initial step of decay in human teeth that the better thought has virtually settled back seemingly to let the larger factor perform its office-work in noting the results that accrue from a close observation of practice. You will notice that the conclusion published by the committee of the New York Institute of Stomatology concerning the papers of Drs. Williams and Andrews has admitted that the only difference seems to be in phraseology. It is fair to say that all truly scientific men can have no quibble over facts. We have never felt that, from Heitzman to Williams' latest, there would be any difficulty in the ultimate to definitely sift the truth from the seeming confusion of thought, admitting the fact that doubtless there would be found some chaff among the grains of wheat. We must admit that more or less we will always be obliged to draw some of our conclusions from hypothesis. We are limited from a human standpoint, which says: thus far shalt thou go; but beyond a certain point we have not the mental capacity to go further. Not by any searching can we ever reach the source of knowledge; we are not yet in the realm of infinity. So we are ready to say that we are checked so far as there is much more hope of demonstrating more definitely the initial step of decay in teeth. We are to get our practical satisfaction in the fact that the most we can do is to delve more in the line of prophylaxis, which can but aid in a larger remedial practice. So much for meeting decay of teeth practically.

Let us turn to what we may safely say is the larger field of the loss of human teeth, which is by Riggs' disease, alias "pyorrhea," alias "idiopathic alveolitis." Regarding the deeper knowledge of this malady we are frank to emphasize our confidence in the facts that have been presented to us during the last ten months by Dr. Henry S. Nash, of New York, by the book he has published. We will omit an apology for the faultiness of the book in its

present condition; but at once emphasize the importance of that which is worthy of the intelligent attention of the best thinkers along this line of practice.

We cannot forbear saying that there has been a repetition of twaddle talk by men that shows glaringly that they have no intelligent conception of the subject. There are many practitioners that can be parrot-taught to clean the external deposits from teeth. We say "can be"; that many are is far from the fact. To do this it does not require a surgical preception. But this field of practice that requires the humanitarian aid to the patient does require the skill of a surgeon in a far larger sense than has been much regarded by the rank and file of our calling.

We have been asked many times by patients, "Why do you not give pupilage in this field of practice?" My answer has been this: I have not found a person that had interest sufficient to enlist them for a term of time that could make them proficient. While I have said, and say again, that there is no department that would give larger returns for skillful service.

Prof. Harlan truthfully remarked at a late meeting of the New York Odontological Society: "Because some one thinks that as he can only demand a fee of fifty cents or a dollar for cleaning teeth, is it any reason that, in considering as a factor that I have given the subject sufficient attention to enable me to command \$20 per hour, is there any reason that I may not do so? Anyone who has risen in his own estimation no higher than a fifty-cent practitioner need not find any fault that some has had higher ambitions. He is the cheapest man to employ." Only this week a patient whose mouth we had put into good serviceable condition, after being much broken up by not having the service that he might have had (this service included not a little surgical help; we call it "putting mouth and teeth in order"), sat down cheerfully after we had told him what we valued our services and gave his check for \$1,000, and then told us that the dearest fee he ever paid was one of \$5.

Now again we return to Dr. Nash's views on idiopathic

alveolitis. We have devoted a good deal of attention to the re-reading of his last five chapters. They are full of an intelligent consideration to the subject in mind. He has produced intelligence that no one else has even touched upon.

Predisposition and environment must play an important part in our thought in the future in all phases of constitutional disorder. Dr. Nash emphasizes heredity, which to us means much. What is our thought of predisposition? We are sure that we will soon come to see that the idiopathic phase will ultimately be traced to a neural disturbance, directly influencing the pathology of the pulp, which in suppurative conditions must be traced to an interstitial sinus, leading from the apex of the root.

I am led to say by other glimmerings of light that have dawned upon my mind that together these have led me to pursue a line of practice that has resulted in absolute success in cases that I have not heretofore been able to meet successfully. Many of these cases baffle the efforts for securing a cessation of suppuration, and the tightening of the loosened teeth. In all my contact with men that have dealt with this malady I have not learned of any way of dealing with this particular phase.

Again : by the journals we have been edified by the paper of Dr. Jack directly antagonizing the writings of Prof. Harlan concerning the theory of coagulation. These differences are not those of ignorant men, but both are entitled to a respectful consideration. This is not always accorded. It is to be regretted that local jealousies are too often found to influence the decision of men. Personally, we are strongly impressed that not a little that is demonstrated clinically, amounts to but a trifle, in a minor sense, when we come to practice. However, as things go on and we get at the real facts, we find that we must make some deductions for idiosyncrasy. We are seeing more and more that chemistry is a subtle science, and while we may be able to approximate in our conclusions, we are not, as yet, able to settle all things as settled.

We now have before us an example where an *honest* effort

has been made to produce an amalgam that will best meet our demands, and what do we see? Denunciations from those for whom we would like to maintain our respect for what they have done in the past. But can we when it is so manifestly the spirit they are pursuing is only a business animosity? In New York parties, also interested in a business, seek to parade wicked denunciations by charging that the fact that "*such ingredients do exist in the formula, but they do no harm; but the manufacturers or proprietor lies and says the ingredients do not form a part of the formula,*" and dentists claiming good standing are degrading their former good name by being dragged into the nasty business. Do we know all about the actions of alloys? We *throw not*.

Now comes from California or Oregon a notable invention; the White invention, so said; but how long will it be before the cry will go up, "Nothing new!" Let us wait and see. "We know but in part," and under human limitations we shall so continue, while some will know more than others, and again: "Who maketh us to differ?"

HINTS ON DENTAL THERAPEUTICS.

BY DR. IRVIN W. HAYS JR., GRASS VALLEY, CAL.

[Read before the California State Dental Association, June 22, 1898.]

I WAS requested by the chairman of the Committee on Therapeutics to write a paper on this subject. It is a subject that requires a great deal of thought. There is always something new being suggested in dental therapeutics, but when put to the test a large portion fail to meet our expectation. I will but mention a few of the most popular disinfectants in use: Chloride of zinc, iodoform, carbolic acid, listerine, peroxide of hydrogen, solution corrosive sublimate 1 to 1000, euthymol, lactic acid, trichloroacetic acid and powdered sulphur.

In using iodoform with Blair's vaporizer I have had very fair success. I will mention one case of an abscessed molar, the patient being a traveling man, having traveled from

the East direct; was unable to stop over at any place, his ticket not permitting him to do so, suffering constantly for nearly a week. On examination I found the buccal cavity nearly filled with an abscess from the palatal root of the right superior six-year molar, the abscess being so far advanced as to have broken itself in a short time about half an inch above the gingival border, which part was very much weakened. The patient having used a great deal of iodine for two days, and having applied the same himself, it was easy to account for tissue disintegration. The first step taken was to withdraw the pus, which was easily done through the gingival border by placing a plugger between the festoon and the cementum, raising the tissue and pressing the pus from the sac. The next step was to sterilize this sac and make the tooth aseptic. After washing the sac with peroxide of hydrogen I again washed with a diluted solution of euthymol in warm water, which oftentimes subsides the painful effect of disturbing the dormant and morbid condition of the surrounding media.

I also cleared the débris from the tooth as far as the pulp canal, and after using Blair's vaporizer, which I find very effective in such cases, I removed the pulp, finding the canal very small. I again used the vaporizer. After administering the usual temporary treatment, I dismissed the patient until the next day.

On the following day a careful examination was made, and process of healing had enacted a great change. Suppuration had immediately ceased; so, after using the euthymol wash in the sac and medicated cotton in the tooth, I dismissed the patient. On the third day I found the inflammation fully subsided and the sac nearly healed. The same treatment followed, but after a few days I discovered a breaking away of the tissue, where the above-mentioned fistulous opening would have been, so as to leave the alveolus quite bare. I treated this part a week with iodine, and the stimulating effect of this had wonderfully assisted nature in replenishing the broken tissue. Under the usual routine the tooth was filled and has not troubled him since.

A very successful method of removing decay from sensitive dentine, especially that decay which sets very compactly and resists the sharp hand excavator, is to swab the cavity well with oil of cloves and dry with warm air, after which take a small wheel excavator, number $11\frac{1}{2}$ or 12, and cut this decay into small squares. I again use the oil of cloves and do as before, and as many times as it is needed; after each application I cut the squares or blocks into still smaller ones; this done I lift out the decay, once a hard mass, by small piecemeals with any excavator suitable.

I think it will only be a short time when the dentist will treat the patient constitutionally as well as locally. In treating loose teeth, caused from pyorrhea alveolaris, after cleaning the teeth of all the calculus I use rhustox, strength 3x, homeopathic doses. I could give a great many cases where I have had success, but I will only cite one.

A Sister of Mercy from the convent in our town, came to me about a year ago and wanted me to extract her teeth as they were bothering her so much that she could not eat. On examination I found her suffering with pyorrhea alveolaris, after cleaning the teeth and treating the surrounding tissue, the teeth continued quite loose, I gave her rhustox, strength 3x, once every day for a week, then the teeth became solid and have remained so ever since.

DISCUSSION.

Dr. Hays.—I want to add a word. The Sister came to me about a year ago. Her teeth were extremely loose. After making local applications and cleaning them they still remained that way. I gave her rhustox, as I said. I did not see her for eight months. One day last week one of the Sisters was in the office, and I asked her how the Sister was and requested her to ask her to come and see me if she came to town. Friday before I left the Sister came and showed me her teeth. She had as good teeth, as strong, as solid and firm as anybody's teeth. I called in a physician from the next office. He came in and found the teeth as

healthy as if there had never been anything wrong with them.

Dr. F. H. Metcalf.—Of course any medicine we may administer internally which builds up the general system will strengthen the tissues, particularly in cases of pyorrhea. Chloride of zinc I have used very extensively for sensitive dentine. For cavities in the cervical margin of the gum, after you have got the clamp on so as to keep it perfectly dry, make an application of creasote first, then chloride of zinc, then chloride of hydrogen. I find often, as Dr. Hays has said, in cutting this dentine you can take a sharp spoon and take the whole thing out at once with very little pain. For treating sensitive dentine I have found much more efficacy in chloride of zinc thoroughly hydrated—found it more satisfactory than anything else I have tried.

Dr. L. Van Orden.—With creasote?

Dr. Metcalf.—First creasote and chloride of zinc. Oil of eucalyptus I have used with very excellent results.

Dr. A. H. Mories.—I have had a number of cases such as Dr. Hays speaks of in his paper, where I have found, in my experience at least, I could not relieve them by local treatment, but have succeeded by systemic treatment.

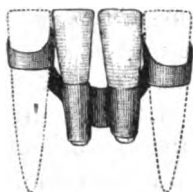
Dr. W. P. English.—One point in the paper I would like to commend. I would like to know if anybody else has found it good—rhustox administered to cause the teeth to become firm? That is a point in the paper I think that can not be well overlooked. It is a good thing. I would like to know if others have tried it? It will do just what Dr. Hays has said.

BRIDGE-WORK, USING THE TEETH PREVIOUSLY LOST TO FILL THE SPACE.

DR. W. E. COOK of Eureka, Cal., has kindly furnished the GAZETTE with the specimens from which the cuts in this article were made. The work was done by himself, and is certainly original. The inferior central incisors, having become loosened through a neglected pyorrhea and the accumulations of tartar, were extracted, the lower portion of the roots removed, the canals filled with cement and

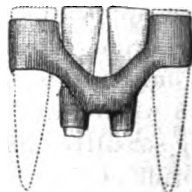
closed with amalgam. They were then placed in position on the bridge as illustrated. The bridge was held in place by bands encircling the lateral incisors and the teeth were held in place by being cemented into bands held by a depressed bar between the laterals. The bridge was worn with comfort for nearly six years, when the laterals were

FIG. 1.



Labial Aspect.

FIG. 2.



Lingual Aspect.

lost from the same cause that had lead to the loosening of the centrals.

It is sometimes extremely difficult to supply with artificial teeth the loss of the inferior incisors. In such cases the bridge-work above presented is to be commended. It is durable and presents a natural and pleasing appearance.

Selections.

GOLD NOT THE IDEAL FILLING.

BY NORMAN W. KINGSLEY, D.D.S., NEW YORK, N. Y.

GOLD fillings in teeth are unsightly and savor only of barbaric splendor. It is the savage alone who would decorate his teeth with gold. Such conspicuous exhibitions of the jeweler's art violate esthetic taste and would not be tolerated by any refined person were it not that in this country people have become so accustomed to these expositions, and with it possessed of the idea that in this way only can they have their teeth preserved, and they submit to that which would otherwise be grossly offensive.

It is bad enough when gold becomes a necessity for the preservation of the teeth from further decay, but when the

employment of gold is sought for purposes of display and to attract attention, it is an offense against all refinement and culture.

I once saw a passenger on board an Atlantic steamer dressed like a lady whose upper front teeth were nearly all gold. It was subsequently learned that she was of the demi-monde and used this means to attract attention. While small pieces of gold in teeth that are exposed to observation are unsightly enough, the introduction of entire gold crowns is an offense that only a savage would take pride in.

For several years I have been a personal observer of the investigations and experiments carried on by Dr. Jenkins, of Dresden, Germany, to obtain a material free from objectionable appearance. Dr. Jenkins, although one of the most skillful operators in the use of gold, was continually met with objections from his clients (who were among the most cultured of continental Europe) to his using gold, because of its unsightly appearance. These people would elect to have any other substance in preference, and would prefer to submit to constant repetitions of filling with gutta-percha and cements rather than accept gold.

It was not therefore with a view of obtaining a cheaper material or one more easily worked that Dr. Jenkins faithfully followed his ideal year after year.

His prosecution of this subject was no empirical haphazard spasmodic effort. I have known him to leave an extensive practice in the care of his assistants and go into the mountains of Bohemia and spend weeks among the porcelain and glass workers for which Bohemia is famous.

He spared no expense; all the resources of scientific experts were at his command, and he was ultimately rewarded by the invention of a porcelain enamel which can be made to match the natural teeth in tone, texture and surface so closely as to defy detection.

THE IDEAL FILLING MATERIAL.

I have been called many a time to inspect a mouth where he had inserted these porcelain fillings in teeth, and with close scrutiny have sometimes failed to detect them.

This material contains the ingredients and possesses the properties of both porcelain and enamel; it furnishes a per-

fect material for filling almost all cavities which are in condition to receive permanent treatment. It resists acids, is not stained by sulphides, is harder than the substance of which artificial teeth are made, does not change in color nor disintegrate in the mouth, and is perfectly tolerated in cavities which under gold would be continually sensitive to change of temperature.

It is not a material for careless or incompetent operators, as its successful use requires the highest qualities of skill, taste and judgment.

Although only a limited number of American dentists in Europe have had an opportunity of putting this enamel to a practical test, each and every one is enthusiastic in its praise.

Dr. Abbot, of Berlin, says: "I consider the whole process, and the enamel body in particular, one of the greatest achievements in modern dentistry, especially from the esthetic standpoint. When properly and judiciously manipulated, this material enables the dentist to improve teeth hitherto disfigured by gold or cement, to an almost incredible extent, by restoring contour, color, and by imitating the natural gloss to perfection. By its means weak walls, which would ordinarily forbid the insertion of gold, may be sustained, and pulps nearly exposed and sensitive to thermal changes permanently protected. In short, besides the many uses to which the enamel may be put, in pivot and bridge-work, and although its preparation would undoubtedly require some skill and conscientious care, the dentist may, in any case where a good impression can be obtained, perform with it an operation more than satisfactory to his patient as well as to himself. No dentist who cares to do artistic work and wishes to keep in the front rank of his profession should be without this outfit."

Dr. Abbot's experience is confirmed by Dr. Sylvester, dentist to His Imperial Majesty, the German Emperor; Dr. Miller, Professor in the University of Berlin; Professor Sachs, Breslau; Dr. Young, Leipsic; Dr. Thomas, Vienna; Dr. Davenport, London, and Dr. Crane, Paris.

Dr. Spalding, Paris, writes: "I have most surprising and delightful results from using Dr. Jenkins' porcelain enamel,

and my patients are enthusiastic in praise of this process. It is to me one of the most useful and artistic adjuncts which has ever been offered to our profession, far outranking any other method of porcelain inlay or filling that has been devised. It will melt to a most beautiful edge, it can be contoured when desirable, it can be melted easily and is easily inspected during every stage of the process. This but feebly expresses my gratitude for so beautiful a help in my daily work."

And to the foregoing I unhesitatingly add from personal experience my endorsement of all the qualities as set forth.

Let no one be deluded with the idea that this is a cheap process for repairing decayed, broken or deformed teeth. It is more expensive than gold; requires more time, more judgment and more artistic skill than is required in the insertion of gold fillings, but to persons of refined tastes who are not seeking "cheap dentistry" the fee ought to be and is a secondary matter.—[Items of Interest.

THE TOXIC EFFECT OF COCAINE, INDUCED BY CATAPHORESIS, APPLIED TO A PULP PREPARATORY TO ITS REMOVAL.

BY M. W. FOSTER, M.D., D.D.S., BALTIMORE, MD.

[Read before the Dental Society of the State of New York, May 12, 1898.]

ONE collected fact is more potent for the eradication of error than a number, however important, if these are not brought forward. I shall in this paper relate as concisely as possible an occurrence which I am sure will place under suspicion at least some of the theories advanced in reference to the toxic or non-toxic effects of cocaine upon pulp-tissue with the aid of the cataphoric current. Under the conditions hereinafter named, are the probabilities of the toxic effect of cocaine so thoroughly understood as our professional brethren would have us believe?

On the 4th day of April a married woman, a student in the junior class of the Baltimore College of Dental Surgery, was suffering from an exposure of a pulp in the left upper second bicuspid, distal surface, and applied to the demonstrators in charge of the infirmary for relief. After

an examination, it was decided that under existing conditions it was necessary to destroy and extirpate the pulp. On the request of the patient, who had witnessed in clinical practice a number of operations of extirpation of pulps with an application of cocaine solution with the aid of the cataphoric current, it was decided to proceed as usual in such cases. The cavity extending a line or two above the gingival border, it was necessary that the gum be forced above by wedging. This was done, after which the rubber-dam was carefully adjusted and clamped. This operation was quite painful; the patient's expressive contraction of the lines of the forehead and eyelids, as well as utterances, was evidence of this fact. A pellet of cotton saturated with a 30-per-cent. solution of cocaine hydrochloride was placed within the cavity. The negative pole was placed on wrist; the positive pole applied to the cotton; strength of current, five cells, continued fifteen minutes. On testing for sensibility after that time, the pulp was found active. As the cotton was dry, a pellet of cotton was saturated with the cocaine solution and again applied within the cavity. After ten to twelve minutes from the last application, the patient commenced touching the tips of her fingers to the them. On being asked why she did so, she remarked that they felt precisely as if they were asleep. When asked if she felt this sensation in the right hand she answered, "No." The band being placed on the left wrist, these questions were just answered when the patient commenced a peculiar howling sound which attracted the attention of all in the infirmary. The cotton from cavity, and the rubber-dam were immediately removed; brandy was administered to the patient by the mouth. The symptoms becoming more alarming, brandy was hypodermically injected, and friction to the body applied. This condition lasted from 3:30 P.M., the time the last application of cocaine was removed, until 8:15 P.M. The patient was removed to her home in a carriage, and the rigidity of the body was so pronounced that the carriage door could not be closed, as her feet remained slightly through the opening.

The patient being requested to call on me, did so, when the following questions were asked and answered:

1. Q. Were you conscious during the operation and afterward? A. I was perfectly conscious, with the exception of the time I was removed from the chair to museum room, about one minute, although I could not speak.

2. Q. What were your most profound sensations? A. I had no feeling lower than my neck; was conscious of having a head—the sensation of *it being* the only part of me.

3. Q. Why couldn't you *sit* in the carriage when placed in it? A. I was so rigid that I had to be held up straight, and the angle at which I was held made my feet slightly protrude outside of hack.

4. Q. At what time did you regain the power of speech? A. At about 8:15 P.M., after twenty drops of digitalis had been administered.

5. Q. How was your throat affected? A. It was exceedingly dry all that night and the following day.

6. Q. Did you experience any pain in the eyes? A. Yes, they were quite painful, and are still affected with dimness of vision.

7. Q. Were your ears affected? A. Yes, but I am recovering more quickly my hearing than my eyesight, which is still imperfect.

When it is considered that the patient was being treated before a class of students more or less familiar with the methods of application, and with the action of cocaine, it would seem very probable that all the precautions that are usually taken were enforced. Notwithstanding, we have here a well-marked case of cocaine poisoning.—[Den. Cos.

A METHOD OF HANDLING ALVEOLAR PYORRHEA.

BY DR. G. T. CARPENTER, CHICAGO, ILL.

Abstract of paper read before the American Medical Association—Section of Stomatology at Denver, July 30, 1898.1

In presenting this paper I do so with a feeling that the practical side should not be lost sight of while we are eagerly searching out the scientific. Much has been written on the subject of pyorrhea alveolaris, and there is a great difference of opinion still existing as to the etiology, pathology,

diagnosis and treatment of this disease. It is not my purpose in this paper to discuss the various points above mentioned, but to give a brief outline or method of handling these cases which has given me the most satisfactory results. It has been my experience that different cases of pyorrhea need different treatment. One case may yield readily to a certain treatment, while another may be very persistent in its pathological behavior. But thoroughness in diagnosis and treatment is the key to success. In diagnosing any case, get a history of it and decide on the predisposing cause, or cause outside the pocket, which is generally from local irritation caused by wooden toothpicks, ligatures, wedging of teeth, ill-fitting plates or crowns, accompanied with neglect of the mouth. These or other causes should be removed and any constitutional predisposition should be corrected, and then we should secure the hearty co-operation of the patient. The disease once established is self-sustaining, and it is within the pocket that we must look for, find and remove the exciting cause, which may be serual deposits, pus-secreting membrane, foreign substances, or diseased or necrosed margins of process. To make a careful and thorough examination of the pockets, I secure dryness with bibulous paper, protect the parts with a napkin, and coat the surrounding gum with cosmoline to protect the parts outside of the pocket from the action of medicines. Now dry the pocket and pack with cotton, slightly moistening with four- to eight-per-cent. aqueous solution of cocaine. After allowing this to remain several minutes, carefully remove the cotton. The pocket will be found to remain open, so that an examination can be made with a mouth-mirror. Deposits, if present, can be located before instruments are used for their removal. I operate on but one tooth at a time, or on the interproximal space between two teeth, doing all that I intend to do in that immediate locality before directing my attention to other teeth. All loose teeth having lost two-thirds or more of their natural support are extracted. The best instruments to use in the pockets are spoon-shaped excavators, with the shanks bent so as to reach every part of the root or pocket. They must be kept sharp, so that deposits can be easily removed and

the root curetted. The soft parts and margins of process can also be curetted if necessary. The pocket should be cleansed with equal parts of peroxide of hydrogen and pasteurine, or three-per-cent. pyrozone and borolyptol, using a flat-pointed syringe, which should pass to the bottom of the pocket. This will not only antiseptically cleanse, but mechanically carry out all free and loosened particles. The gums are now wiped dry and painted with a tincture of iodine, which should be repeated about twice a week.*

The tooth, if loose, is supported by bands or ligatures, and if moved by occlusion I grind the tooth or its antagonist sufficiently to prevent all movement, so as to procure rest for the affected parts. All subsequent treatment of the pocket should be made by the use of a thinly-shaved hard wood toothpick, which can be moistened in the antiseptic and bent so as to reach any location. This should be passed into the pocket as deeply as possible without injury to the tissue or causing pain or hemorrhage, and the application repeated once or twice a week as long as the toothpick can gain entrance to the pocket. I find that it is seldom if ever necessary to make incisions through the gums into the pockets, and I but seldom resort to the use of dilute or stronger acids as an aid in softening or removing deposits or to establish resolution.

Antiseptic and prophylactic conditions should be established and followed during treatment, and indefinitely continued throughout life. I recommend a thorough rinsing of the mouth and the use of an antiseptic after each meal. I also recommend a medium stiff tooth-brush to be carefully used once in twenty-four hours, and that at night before retiring. This time, once established, will not be substituted for other hours in the day. The brush will have time to dry and for the elasticity of the bristles to be restored, which will do the best work at the most needed time. A good dentifrice with the base precipitated chalk should be used on the brush, after which one dram of pasteurine or borolyptol should be taken into the mouth and retained for from three to five minutes, at the same time

*Dr. Talbot's article on *Pyorrhea Alveolaris*, in the *International Dental Journal*, April, 1896.

moving the cheeks and lips so as to force it between the teeth and reach all parts of the mouth; then expectorate and retire without rinsing the mouth with water.

The time spent in the successful treatment of this disease depends on the constitutional condition of the patient and the extent of the disease, or the thoroughness with which the first operation is performed. The recurrence of the disease comes from a failure to remove the predisposing causes. The reproduction of gum-tissue* in all interproximal spaces is essential to prevent the lodgment of food or injudicious use of the toothpick. I believe that a thorough removal of the cause, with antiseptic treatment and stimulation of the gum-tissue, will cure the most persistent case of alveolar pyorrhea.

A RESTATEMENT OF THE TOOTH-BLEACHING PROBLEM.

BY DR. EDWARD C. KIRK, PHILADELPHIA, PA.

[Abstract of paper read before the New York Odontological Society, April 19, 1897.]

FROM a general survey of existing ideas upon the question of tooth-bleaching one cannot avoid the inference that our practice in this line of treatment is almost empirical. Practitioners concern themselves principally with methods of procedure and the detail of minutiae which go to make up a given bleaching process, rather than with the scientific reasons why the process is applicable, or from a rational understanding of the conditions to be met. Hence it is that we hear more of the relative merits of given processes for tooth-bleaching than we do of the principles which govern their successful use. But the best and most uniformly successful results in this as in any line of treatment can never be attained through the empirical study of clinical phenomena alone; a clear understanding of the underlying principles involved is essential to a rational use of methods based upon them, and is necessary to their successful application.

It is true that our knowledge of the principles underlying tooth-bleaching processes, as well as of the conditions

*"Reproduction of Gum-Tissue." *Dental Review*, November, 1897.

to be met, is meager and imperfect, and still needs thorough investigation. Yet there is enough to serve as the basis of study, and it is with the hope that I may be able to give direction to your thought in this matter that I have chosen this topic for consideration.

It is at once evident that we are confronted with a chemical problem, for, in the successful application of a tooth-bleaching agent, we have wrought an important change in the matter causing the discoloration, so that it has lost its color quantity and become white. Any change which affects the composition of matter so that its identity as such is destroyed is a chemical change.

Our problem then is one of chemical reaction between a so-called bleaching agent and the coloring matter lodged within the dentinal tubules which shall so alter the composition of the latter as to render it colorless. A bleaching agent is any agent capable of effecting that result.

We may next consider the nature of the coloring matter, and afterward the means by which its color factor is destroyed.

Tooth-discoloration may arise from many causes, but for our purpose this evening we will consider only the most common one—viz., that following death of the pulp and in which the source of discoloration is the hemoglobin of the blood. Hemoglobin is a complex protein compound contained in the red-blood corpuscles. Traumatic causes, intense and sudden congestion of the pulp due to irritants, especially of arsenious acid or strangulation of the pulp, may cause a rupture of the stroma of the corpuscles, liberating their contained hemoglobin and its diffusion into the tubular structure of the dentine. The result is that the tooth becomes pink.

The difference in appearance between blood containing unruptured corpuscles and that in which the hemoglobin has been liberated is quite marked, and is clearly seen in the two flasks before you. One contains simply defibrinated blood, the other defibrinated blood which has been agitated with a small amount of ether. The latter, when viewed even in thin layers by transmitted light, presents the appearance of a homogeneous solution of hemoglobin in

serum, while the former, in thin strata, presents the characteristic cloudy, granular appearance due to the presence of the unbroken corpuscles.

We may now test the reaction of our hemoglobin solution with hydrogen dioxide by staining a sheet of white blotting paper with the hemoglobin and then applying the dioxide, and, as you see, the color is rapidly discharged, from which we infer correctly that in the very first stage of tooth-discoloration—viz., the pink stage—the color is readily discharged by pyrozone.

The pink stage, however, rapidly passes and gives place to a brown discoloration, or at least some modification of a brown tint, varying in intensity with the amount of hemoglobin originally present. The change from the pink to the brown tint is due to a chemical alteration in the hemoglobin, which consists of its splitting up into hematin and globulin. This change takes place more or less rapidly and spontaneously within the tooth-structure. We can bring about the same result experimentally by the application of any acid to the hemoglobin stain on our blotting paper, and by touching the stain with dilute hydrochloric acid you see the bright red color is instantly changed into brown. Upon making an application of pyrozone as before we find that the brown stain remains unaffected, and we infer that the brown stage of tooth-discoloration is relatively more resistant of bleaching by pyrozone than is the pink, an inference supported by clinical observation. The tooth under ordinary circumstances passes through color changes beyond the brown stage into a bluish gray or nearly black color, and these changes in color are due to the progressive breaking down of the hemoglobin until the compound is reduced to its lowest terms. The final black or dark color is permanent, and is due to the formation of an unalterable compound of iron probably with sulphur, the iron being one of the original constituents of the hemoglobin and the element to which its various color manifestations are due. The sulphur which enters into the formation of the permanent final stain is derived from the protoplasmic element of the cellular structures of the pulp.

The resistance of the brown discoloration of hematin to

pyrozone and other bleaching agents in greater or less degree renders the restoration of teeth so discolored often quite difficult. I have found, however, that the brown discoloration may be successfully removed by the prolonged action of either sodium or hydrogen dioxide, followed by an application of strong oxalic acid. The rationale of the process is based upon, first, the existence of iron as a constituent of hematin, and the formation of a soluble and practically colorless salt of iron with oxalic acid.

The permanence of the bleaching process is directly related to the existence of iron as an element in the original coloring matter of the tooth, and which must either be finally gotten rid of, or else so fixed by the application of certain agents that it cannot form new and colored compounds, if a permanent result is to be hoped for.

That iron is one of the elements of the hemoglobin stain is easily demonstrated, and that it is not removed by pyrozone, but simply changed into a colorless combination will be seen by applying the usual reagents for the detection of iron to the bleached stain on the paper before you, and there are at once shown the characteristic reactions of iron to potassium sulfocyanide, potassium ferrocyanide, and to ammonium sulfide. Teeth in the early stages of discoloration and which contain coagulable matter in the tubuli should be treated to an application of strong zinc chloride immediately after the bleaching by pyrozone, in order to coagulate and fix the white compound unalterably, or, what is better, should be treated with a strong alkali,—*e. g.*, sodium dioxide or Schreier's preparation—with a view to dissolving and eliminating the contained organic matter, aided by a thorough irrigation by hot distilled water. Where coagulable matter is not present resort must be had to a resinous solution applied to the dessicated tooth until the dentine is saturated as fully as possible.—[Dental Cosmos.

QUEEN AMELIA, of Portugal, has recently graduated as a doctor of medicine after pursuing a five years' course of study. Her first patient was her husband, King Charles I, whom she has been treating for obesity.—[Ex.

Correspondence.

THE ESSENTIAL OILS, ETC.

EDITOR PACIFIC MEDICO-DENTAL GAZETTE: Your September number contains a reprint article by Dr. A. H. Peck, of Chicago, Ill., entitled "The Essential Oils and Some Other Agents, Their Antiseptic Value; also, Their Irritating and Non-irritating Properties," which asserts, principally, the unsuitableness of oil of cassia (or cinnamon) as a root-dressing, and inferentially includes formalin under the same indictment.

The author of the paper states that he has conducted some experiments to test the antiseptic value of certain oils and compounds used by dentists. These experiments prove very little, and his results are of doubtful accuracy, especially in view of his whole-souled condemnation of oil of gaultheria (or wintergreen), which consists of 90 per cent. of methyl salicylate, this latter having, according to Bucholtz, five times the antiseptic power of carbolic acid and eight times its disinfectant action.

The condemnation of oil of cassia and of formalin, based on a physiological test on soft tissues, carries no weight when the total dissimilarity of structure and function between the parts to which the experimenter applied his tests, and the parts where he would prohibit the exhibition of these drugs is considered. The physiological and structural conditions surrounding the teeth, or, at any rate, those parts likely to be exposed to the action of an antiseptic used on the teeth, bear little relation to the conditions that prevail on the epidermis, so that no analogy holds between the action of a drug on the epidermis and its underlying structures and its probable action when placed in a root-canal.

Dr. Peck states that oil of cassia will blister the epidermis if applied and retained *in situ* under an impervious rubber cup for twenty-four hours! Chloroform will do the same thing under the same conditions in a few minutes. Yet no cry is raised or doubt cast on the irritability of chloro-percha as a root-filling on account of any hypothetical irritation it

may cause from the chloroform that it contains. The tooth structure is dense, and the root-canal is connected with the external tissues—the peridental membrane—only by the apical foramen, if we except the slow, non-corpuscular circulation from and through the cementum, so that no antiseptic placed in the root-canal can reach the peridental membrane except through the foramen, and only in the case of abscess, where there is an intentional thrusting of medical ment through the foramen, is there any danger of irritating the peridental membrane by the use of any antiseptic; then, again, the structure of the peridental membrane is such that there is very little liability to injury from medicinal action. The only drug that seems to have any ability to set up peridental inflammation is arsenic; caustic, corrosive drugs of every description have been and are packed into root-canals, and forced through apical foramina without any history of irritation being caused thereby.

In earlier days carbolic acid was extensively used in root fillings and treatment, and is still practiced by many practitioners, though theoretically condemned by some college teachers; and carbolic acid, as we well know, destroys the cuticle and forms an ulcer difficult to heal. In the treatment of wounds a five-per-cent. solution of carbolic acid in oil is often found to be so caustic as to prevent the healing process being satisfactorily accomplished, and yet the full strength acid is used in root-canal work, and is even recommended by some professors as a final dressing before filling the root-canal, "to seal the ends of the dentinal tubules abutting the canal by coagulating their albuminous contents, and thereby checking the entrance of putrefactive matter."

Dr. Peck's condemnation of oil of cassia as a root dressing is entirely illogical and at variance with the empiric use of oil of cassia followed by the profession; for, whether oil of cassia will blister the skin of the leg is immaterial, it WILL destroy putrefactive organisms and put a foul root-canal whose walls are saturated with putrefactive material in a condition of perfect sweetness, which will last, by ONE proper conscientious application.

The recommendation in the paper of oil of cloves can be endorsed to some extent, for this drug has a special though

limited field of usefulness. The antiseptic ability of oil of cloves is comparatively low, but its penetrative power probably exceeds that of any drug we use on the teeth. The use of oil of cloves for clearing sections is well known to microscopists, and there are few, if any, organic tissues into which oil of cloves will not penetrate, and thus its especial usefulness is displayed in large cavities where the pulp is covered only by carious dentine, either sensitive itself or at any rate readily transmitting sensation to the pulp beneath. There the beneficial action of oil of cloves is marked, the cavity being swabbed out with oil of cloves on a pledget of cotton, before putting in the cement, the pulp is made comfortable and rarely gives further trouble. This action is probably due to eugenol, which is the principal constituent of the drug and is a local anæsthetic.

Eugenol is a constituent of many essential oils; the oils of cinnamon leaves and bay leaves contain it in large proportion, and Dr. Peck's condemnation of its antiseptic power is somewhat hasty.

The following tables of antiseptics and disinfectants, taken from Bucholtz, explain themselves; these give the comparative strength of effective solutions of different drugs necessary to prevent or arrest the development of putrefactive bacteria, which are the principal agents we have to combat in cleaning, treating and filling root-canals.

The first table shows the smallest proportion of antiseptic which prevents the development of bacteria in a Pasteur fluid inoculated with decomposed vegetable infusion.

Corrosive Sublimate.....	1 part in 20,000
Thymol	" " 2,000
Sodium Benzoate	" " 2,000
Creasote.....	" " 2,000
Benzoic Acid.....	" " 1,000
Methyl Salicylic Acid (Oil Gaultheria) ...	" " 1,000
Salicylic Acid.....	" " 666
Eucalyptol.....	" " 666
Sodium Salicylate	" " 250
Carbolic Acid.....	" " 200
Quinine	" " 200
Sulphuric Acid.....	" " 151
Boric Acid.....	" " 133
Cupric Sulphate.....	" " 133
Hydrochloric Acid.....	" " 75
Zinc Sulphate.....	" " 50
Alcohol	" " 50

The smallest amounts which would arrest putrefaction

and render the bacteria incapable of further development when removed to fresh Pasteur's solution were found to be as follows:

Chlorine	1 part in 25,000
Iodine.....	" " 5,000
Bromine.....	" " 3,333
Sulphurous Acid.....	" " 666
Salicylic Acid.....	" " 312
Benzoic Acid.....	" " 250
Methyl Salicylic Acid (Oil Gaultheria) ..	" " 200
Sulphuric Acid.....	" " 161
Cressote.....	" " 100
Carbolic Acid.....	" " 25
Alcohol.....	" " 4.5

While Dr. Peck's conclusions are sometimes hardly logical, still the article points out the necessity for intelligent, accurate experimentation on the usefulness, range of effect and action *in situ* of the drugs we use in the treatment of dental diseases.

Oakland, Sept. 26, 1898.

E. R. TAIT,

Lic. of Dentistry, Lic. Ph., Ph. G., Ph. C.

Reports of Society Meetings.

OAKLAND DENTAL CLUB.

THE Oakland Dental Club held its regular monthly meeting on the evening of the 5th inst., the President, Dr. Goddard, in the chair.

A discussion took place on the revision of the by-laws relative to the code of ethics, and a committee was ordered to formulate new application blanks and report on same at next meeting.

Dr. S. A. Hackett promised an item of interest for November.

Dr. W. H. Robinson, of Alameda, in response to a unanimous request, has promised a paper for the December meeting, the Doctor having many years of experience to draw from, his contribution will no doubt be of great interest. Several new applications for membership were received and referred for consideration.

A very interesting paper treating on the use of obtundents was then read by Dr. R. E. Gilson, and was very ably

discussed by Drs. Robinson, Meek, Lewis and Goddard. The discussion went to prove that a great deal of the pain experienced in the dental chair was more mental than physical, and that the principal obstacle to overcome was the fear of pain, and to get the confidence of the patient.

Dr. Goddard closed with a few remarks relative to the meeting of the National Dental Association at Omaha.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, SEPTEMBER 6, 1898.

CLINIC.—Dr. Wm. J. Younger. Extraction of first and second right superior bicuspid, which were considerably elongated from lack of occlusion. The root-canals of these teeth were filled and the teeth replanted in their original alveoli in natural and artistic position.

CLINIC.—Dr. Russell H. Cool. Exhibit and treatment of case of necrosis of inferior maxilla, which he had previously operated upon; said operation consisting of burring away the affected bone and partial breaking up of the cicatricial adhesions between the cheek and alveolus, the result of a former operation through the cheek.

EVENING SESSION.

Dr. Russell H. Cool presented a paper, illustrated by lantern slides on the subject of pyorrhea.

Dr. Wm. J. Younger made diagrammatic sketches on black-board of the different methods employed by him in an endeavor to obtain sufficient gum-tissue to cover replanted tooth which primarily had been denuded through the ravages of pyorrhea. These drawings consisted principally of expositions of flap operations.

DISCUSSION OF DR. COOL'S PAPER.

Dr. F. L. Platt.—I regret that I have not had more time to prepare for the discussion of this paper, as there were points presented in it which were especially important and interesting. I believe that pyorrhea as a disease is increasing in frequency very rapidly, and certainly no disease which affects the dental organs is as aggressive or destructive. The usual diseases of the teeth, even where neglected, do not prevent their being saved by the exercise of ordinary skill, but, unless pyorrhea is treated just so and with more than ordinary skill, their loss is but a question of time.

While showing the difference between medicine and dentistry, I believe Dr. Cool made a very nice point by comparing pyorrhea with phthisis pulmonalis. Dentistry is a very much more exact science than medicine. It is not very uncommon to find surgeons performing capital operations in a perfunctory manner, without fully appreciating the true scientific reasons for so doing. We have been treating pyorrhea in this mechanical way, and it is only since the researches of Dr. Younger have been made public that we have been truly enlightened as to the causes and character of this disease. The schools and text-books have always neglected this subject, although articles treating of this disease are frequently found in the journals. The treatment given this evening embodies first of all a thorough removal of the cause before a cure can be expected. It is not given all of us to possess the manipulative ability of Dr. Younger, we, as a rule, lacking thoroughness and patience. Case after case comes to me where dentists have failed to remove all the deposits.

Speaking of the classification of tartar Dr. Burchard was the first, so far as I know, to present this matter to the profession. Any constitutional treatment which will place the system in good condition, will aid us in our local treatment. I doubt if any of us can cure pyorrhea where there is a low state of vitality or where there are diseases of the blood, liver, kidneys or stomach. Local treatment may help, but the relief will not be permanent. The discovery of the effect of lactic acid reflects great credit on Dr. Younger, as this agent will accomplish results not possible by means hitherto employed. It seems a fact that during their lifetime men get but little credit for what they have accomplished, but I fully believe the time will come when the discoveries of Dr. Younger in the morbid anatomy and treatment of pyorrhea will take rank with the discovery of vaccination and anesthesia.

Dr. Frank C. Pague.—I have heard dentists speak of curing pyorrhea by systemic treatment, and I have criticised their statements severely. But two weeks ago a lady came to my office suffering so extremely from pyorrhea that

she wanted all her teeth extracted, and yet she had just received a course of systemic treatment for this disease. My experience leads me to believe that pyorrhea is not found so much in the middle and lower classes, but rather in persons whose nervous force has been spent by too high living, or are run down from overwork. It seems to be more common in corpulent people who lack exercise, or in those persons who are frail, delicate and sickly. It is because of these conditions that the disease is so difficult to treat.

Dr. J. A. W. Lundborg.—I enjoyed the paper exceedingly, and realize the exhaustive study necessary to produce it. Thoroughness in removing the cause is absolutely necessary in the treatment of this disease.

Dr. Younger.—A question that will occasionally arise in the dental mind is how the condition of pyorrhea may be established? The etiological factors may be multiple. The habitual use of pork, rice, or fatty food may produce this condition. The use of foods containing gritty particles, as oatmeal, seeds of berries, or graham bread; any of these may cause an irritation. I have seen pyorrhea started by a portion of the core of an apple. Malocclusion may be the cause of this disease. When we have removed these things and any deposit in the nature of tartar we have removed the source of the disease, but the pyorrheal pockets remain and they may fill again with anything; so it is necessary to obliterate these sources of danger. In these conditions there is always a certain amount of necrotic tissue, and lactic acid dissolves this. It may possibly have a digestive action upon it. I find that the result of this treatment is to reproduce a true union between the gum tissue and the tissues of the tooth. Many investigators in this field at first combatted this statement, but I find that many of these are now agreeing with me. Dr. Talbot believed that syphilis and scurvy produced true pyorrhea, but this theory is wrong. It is true that the nutrition of the alveolar process may be destroyed during the course of these diseases, but no deposit is found on the roots of the teeth. Are there any questions?

Dr. Platt.—I have had under my charge lately two or three cases where there has been great loss of tissue, including absorption of the alveolar process. After the removal of the tartar the gums became hard and healthy in appearance, but the atrophy of tissue still progresses. There is no apparent inflammation nor any discharge of pus. The teeth are large and strong and the pulps alive. What condition do you consider present under these circumstances?

Dr. Younger.—As a rule pus forms so slowly that it remains in the neighborhood and bathes the roots of the teeth constantly. A deposit is formed from the disintegrated lime salts which it holds in solution, and as a result of bacterial energy this deposit becomes agglutinated and forms the calculus which we find in pyorrhea. Under these conditions pressure and massage would stimulate the parts and mechanically remove the pus before it has time to deposit. As regards teeth which are becoming loose and where there is absolutely no discharge I should say that it looks like a case of atrophy, due to malnutrition. Stimulating the parts by means of massage, or scraping the alveolar process would seem to be the line of treatment indicated.

In regard to pyorrhea being a new disease, it is considered so simply because we pay more attention to it as we progress in our profession. While at Rome I visited the catacombs of Caputhius. Here we find bones which have accumulated for hundreds of years arranged about on walls. Skulls are piled up in ornamental designs, as pyramids or columns, and, being in this position, it is easy to study vast numbers of them. Here and there skeletons are left standing and clothed in olden garb. According to religious law these are saintly, because, after being buried for 100 years, they are not decomposed, and are declared saintly because of not being subject to the laws of decomposition. In other chambers the bones are scraped and arranged in designs, even the finger nails are placed so as to represent flowers. In those saints' jaws where the teeth are exposed I noticed deposits of tartar and other evidences of pyorrhea. This condition has existed in the individuals who lead lives of deprivation and not of full habit. Pyorrhea seems to have been common through all ages of the

past. I believe Dr. Burchard is wrong in some of the details of his classification of tartar, and especially where he says that there should be a special treatment for every variety. There is one treatment for all varieties, and that is thorough removal.

SAN FRANCISCO DENTAL ASSOCIATION.

THE annual meeting and election of officers of the Association took place on the evening of the 10th inst.

At the clinic in the afternoon Dr. Frank C. Pague illustrated his method of devitalizing a tooth. A composition of alum and arsenic (3 parts alum, 1 part arsenic,) should be left in the cavity for at least ten days or longer, if possible, when the pulp can be removed intact. The use of devitalizing fiber in this treatment is advocated. To avoid inflammation apply a little iodoform with a drop of camphophenique.

The evening session came to order at 8:45 o'clock, President Dr. F. L. Platt presiding.

Drs. Craigh, Edwards and Bean were admitted to membership.

The motion of Dr. Post to have the initiation fee raised to \$2.50 was adopted.

The Association's officers for the ensuing year are:

President.....	F. L. Platt.
Vice-President.....	H. L. Seager.
Recording Secretary.....	B. C. Boeseke.
Corresponding Secretary.....	Miss M. V. Croall.
Treasurer.....	W. A. Knowles.
Librarian.....	C. E. Post.

President Platt stated that the Association was at present in a healthy condition, and was established in comfortable quarters, and he could gladly say that during his term of office there had been no friction nor anything else to cause unpleasantness. He sincerely hoped that the members would take greater interest in the clinics, and that during the next twelve months the younger members would be heard from.

The President further urged the necessity of impressing

upon the minds of dental students the value of dental organizations and the upholding of the code of ethics.

Dr. W. A. Moore, Secretary of the State Board of Dental Examiners, addressed the Association in regard to the rapidly increasing number of illegal practitioners in San Francisco. The Doctor stated that it only needed the active co-operation of the members to rid the city of this curse, and that in no other town or city were they allowed such sway, San Francisco being their haven. A scheme to lessen this evil was to divide the city into districts, have committees appointed for each, who would obtain the names of every dentist (legal or illegal) and forward them to Dr. Moore, who would return them after culling out the illegal practitioners. In conclusion the Doctor expressed his confidence that, with the proper support, this would be the means of driving from the metropolis of California that which is detrimental to the profession.

A vote of thanks was tendered to Dr. Moore for his valuable address.

SOUTHERN CALIFORNIA DENTAL ASSOCIATION.

THE first annual meeting of the Southern California Dental Association, an organization formed by the union of the Southern California Odontological Society and the Alumni Association, was called to order by the president, Dr. W. A. Smith, in the beautifully decorated hall of the Y. M. C. A. in San Diego, September 2, 1898.

An address of welcome to the visitors on behalf of the members of the profession and the citizens of San Diego was delivered by Dr. Emma T. Read, after which the president delivered his annual address.

After thanking Dr. Read for her kindly welcome, he congratulated the Association on the auspicious circumstances attending its opening session. He pointed out the necessity for harmony of action and unity of purpose if the Association was to be a potent factor in the advancement of the dental profession in Southern California and throughout the State. He also called attention to the fact that the existing dental laws of the State might be greatly improved,

and advised the appointment of a legislative committee to promote reform in this direction.

Herewith is printed the program of the meeting, which continued two days, and list of officers elected, and in future numbers of the GAZETTE will be published, so far as possible, the papers and discussions of the session:

Welcome Address, by Dr. Emma T. Read, San Diego, Cal.

President's Address, by W. A. Smith, D.D.S., Los Angeles, Cal.

"How I Fill Root-Canals," by Dr. E. W. Sheriff, San Diego, Cal.

"Periodental Inflammation," by Edgar Palmer, D.D.S., Los Angeles.

"The Relation of Dentistry to Medicine," by P. C. Remondino, M.D., San Diego, Cal.

"Dental Education," by H. R. Harbison, San Diego, Cal.

"Dental Education," by E. L. Townsend, D.D.S., Los Angeles, Cal.

"Anchorage in Orthodontia," by Dr. D. R. Wilder, Los Angeles, Cal.

CLINICS.

Quick Mode of Gold and Silver Plating for Regulating Appliances, by H. R. Harbison, D.D.S., San Diego, Cal.

Prosthetic Dentistry, by Dr. J. G. Parsons, San Diego, Cal.

OFFICERS—1898-1899.

President.....W. A. Smith, Los Angeles.

1st Vice-President.....H. R. Harbison, San Diego.

2d Vice-President.....C. W. Sylvester, Riverside.

SecretaryL. E. Ford, Los Angeles.

Treasurer.....J. M. White, Los Angeles.

That the meeting was a pronounced success is evident from the fact that over fifty members of the profession in Southern California joined the Association, the attendance was prompt and the papers and clinics received well-merited and earnest discussion.

The meeting adjourned to convene in Los Angeles the first Tuesday in October, 1899. Saturday afternoon the members were entertained by the dentists of San Diego with an excursion on the bay, and in the evening by a banquet at the Hotel del Coronado.

THE NATIONAL DENTAL ASSOCIATION MEETING.

REPORTED BY DR. WALTER F. LEWIS.

THE recent meeting of the National Dental Association at Omaha was somewhat of a disappointment both to the older members of the two societies of which it is composed

and the new members. It had been the cherished hope of many of the members of both the American and Southern Dental Associations that a union of the two societies could be made, and when that was accomplished at Old Point Comfort last summer the new National Association was born, and its future looked auspicious. Its first convention, however, was in many respects a failure. Certainly it lacked two very essential features—numbers and enthusiasm. With the thermometer ranging all the way from 90 to 100 during the entire period of the meeting, it was not an easy matter to create much enthusiasm or interest over papers, discussions or anything, except, perhaps, icewater and electric fans, and there were many sighs for a “little one-story thermometer with zeros all ranged in a row.” It was clearly apparent from the outset that a mistake had been made in selecting Omaha as the place of meeting. The knowledge that a heated term is to be expected in the whole Mississippi Valley about the time of the meeting doubtless kept many away, and many of those who did go were sorry.

However, some very excellent papers were presented, and the discussions elicited the fact that much scientific progress had been made during the year. The operation for cleft palate by Dr. Brophy is comparatively new in oral surgery, and yet it has been performed 497 times, and the success attending it established beyond a peradventure, making it of paramount or equal importance to anything in modern surgery.

A valuable idea which was adopted by the Association was the appointment of a committee to obtain a digest of all the work done last year by the different dental societies in the United States, and arrange and classify the same, thus enabling the Association to present to the profession the most advanced thought and skill in a concise and attractive form.

Very much work will need to be done before the National Dental Association will be such in fact as well as in name. Its influence must be broadened so as to touch the extremes of population, as well as the great centers. There was prevalent at the meeting a favorable sentiment for meeting in San Francisco in 1901; in fact, that “slogan” was upon

every blackboard in the Creighton Medical College, where the Association held its sessions.

The attendance was quite limited for an organization of national character, as there were probably not over one hundred present at high tide of the meeting. There were absolutely no clinics presented, which seemed to us be a grave omission.

Several of the old wheel-horses, such as Taft, McKellops, Peirce and others, show the marks of advancing years, but it is always good to see their faces and witness the zest with which they engage in the work of the Association.

The next meeting will be at Niagara Falls, which we hope will be an ideal one, and justify the wisdom of forming a National Association.

General Medical Miscellany.

A BANANA DIET IN TYPHOID FEVER.—After a long experience with typhoid patients Dr. Ussery, of St. Louis, regards the banana as the best food for them. The banana is almost wholly absorbed by the stomach, easily digested, and very strengthening.—[Medical Record.

CARBOLIC ACID BURNS resulting from the use of phenic or carbolic acid may be readily antagonized by the application of ethylic alcohol to the injured surface. Carbolic acid is freely dissolved in alcohol, and thereby its intensity is greatly diminished.—[Dr. H. J. Wardlaw.

LOSS OF HALF THE BRAIN.—A man is reported by Porta to have lost the whole of his right cerebral hemisphere by an accident. He was unconscious for a few hours only, and when he recovered he proved that immediately after the accident he had not been unconscious, because he recollected being picked up and taken to a hospital. Eighteen months later the wound was closed. He had of course left side paralysis, but, his left cerebral hemisphere being intact, his intellectual functions are said to have been unimpaired.—[Medical Record.

EFFECT OF ALCOHOLISM UPON PATERNITY.—Anthony records the case of a woman of seventeen who married an intemperate husband, by whom she had five weakly children, of which four died within ten days of birth, and one succumbed before reaching four years. The mother then married again, to a perfectly robust man, by whom she has had two children, both stout and healthy.—[Philadelphia Polyclinic.

CHANCRES FROM SHAVING.—At a meeting of the Berlin Dermatological Society, held on June 14th, Dr. Joseph presented the third case of chancre of the cheek contracted from a razor-wound that he has seen this year. He spoke of the increasing frequency of this mode of transmission and others agreed with him. Professor Lesser considered, however, that not so much the instruments are directly infectious as that the cut afforded the opportunity for inoculation. Barbers and barbers' assistants are by no means immune from syphilis, and the favorite method of stanching the blood consists of rubbing and pressure. The barbers' towels were considered the most likely medium for conveying disease from one to the other of his patrons and their boiling each time after use was deemed absolutely necessary to afford even a modicum of protection against infection.—[Medical Journal.

WHAT A WHIFF OF TOBACCO SHOWS.—Go where one will, the nose, the eyes, and even the throat and bronchial tubes are assailed by smoke, that is by a cloud of particles, every one of which has come direct out of someone else's mouth. It is not a nice idea, but let us see what else it teaches. The fumes do but make visible what is happening all day whether we smoke or not. Each of the tiny particles of carbon or condensed vapor which in their millions make up a wreath of smoke, does but indicate the track taken by a corresponding particle of expired air, which, if it can carry the visible carbon, can still more easily carry the invisible microbe. Thus a whiff of smoke entering our nostrils and penetrating our lungs does but show the course which might be taken just as easily by a swarm of microbes, and serves to demonstrate one at least of the ways in which a crowded

life passed in close community with our fellows leads to mischief. What is illustrated by tobacco smoke is sometimes proved in another way. In the bright sunbeams motes are said to dance, and by careful watching one may see not only how numerous these motes are, but of what nasty stuff they are composed.—[The Hospital.

INSPIRATION AS AN OBTUNDENT.—Let any of you hurt a finger, and how soon it is put in the mouth, and a violent inhalation taken several times, till the pain is relieved. The infant in crying violently while in pain from an accident is relieved, and falls to sleep from the constant sobbing and increased inspiration. All temporary teeth I extract by this method in one sudden inhalation or diversion of the will, and not a tear or complaint. Two or three teeth can be extracted while the breath is held in the lungs. You know now why I abandoned electricity for obtunding sensitive dentine and extracting, for this revelation of how nature relieves. All this cataphoresis in dentine is only the work of the current pure and simple, and while I can annul pain in a few minutes by the current I will not fool with it, as by present mode of practice it is no longer worthy of my notice, and could you follow me day by day at the chair, you would adopt the means which would not rob you or your patient of that which neither can ever replace or have paid for remuneratively. I hold that it is all nonsense for you to practice deluding yourselves and robbing the public of valuable time which, unless you get paid for every minute in the application of electricity by cataphoresis, you are a loser also.—[Dr. Bonwill in Dental Brief.

THE LIQUEFACTION OF HYDROGEN AND HELIUM.—The scientific world was thrown into a great state of excitement last week by the announcement that Professor Dewar of the Royal Institution had at last succeeded in liquefying hydrogen and helium. The event is regarded as one of the very highest scientific importance. Many attempts have previously been made to liquefy hydrogen, but hitherto without success, the great difficulty being the extraordinary degree of cold that is necessary for the operation. It is difficult for the untrained mind to conceive the temperature

at which hydrogen liquefies. It is not very far above that of space, or minus 273° C. It is stated that it is the lowest temperature yet observed. To produce such a temperature very elaborate apparatus is required. In no place on the face of the globe is there to be found so low a temperature as in the vat in the laboratory of the Royal Institution. What the scientific results of Professor Dewar's discovery will be, it would be hard to predict, but it will undoubtedly prove of enormous importance in placing a new and potent instrument in the hands of scientist which they have hitherto found lacking. All Englishmen will rejoice that the demonstration that all gases can now be liquified adds another to the long roll of illustrious discoveries which already stand to the credit of British science.—[Sanitary Record.

LIQUID AIR IN MEDICINE AND SURGERY.—The discovery of how to produce liquid air is due to an Englishman, but it is said that an American has gone further than this and has succeeded in putting the discovery to practical use. He also claims that in medicine and surgery its possibilities are numerous. According to the *Cosmopolitan*: "By means of this process air absolutely free from germs could be furnished in any amount; and if the stimulating effect of an excess of oxygen was desired, it could be had without trouble, quite free from the impurities which now often make this gas objectionable. The temperature of hospital wards, even in the tropics, could readily be cooled to any degree prescribed by the physicians in charge; and by keeping the air about yellow fever patients down to the frost point, the nurses would be perfectly protected against contagion and the recovery of the patients themselves facilitated. Again, the cauterizing cold which liquid air is capable of producing might be used in cases of cancer with great advantage, as compared with nitrate of silver, since, while it absolutely destroys the flesh to which it is applied its action is perfectly under control and can be stopped in an instant. It is probable also that hay fever, asthma and even consumption could be greatly relieved without change of climate by this pure, cool, germless air."—[Medical Record.

THE ASEPTIC INFLUENCE OF COLD.—An English journal says that it is highly probable that microbes do not exist in polar regions and at great elevations. Most probably all of them are killed by intense cold. It is for this reason that frozen meat can be preserved fresh for an indefinite time. The fossil mammoths which have been discovered in the banks of Siberian rivers, embedded in ice, are often quite undecomposed, and their flesh is eaten by dogs. Prof. Tyndall experimented on the vitality of microbes by exposing solutions of sugar to the air on the higher summits of the Alps, where he found that fermentation did not take place, whereas at lower levels, where the temperature was higher, the liquids quickly became turbid, owing to the presence of microbes. Dr. Nansen furnishes a confirmation of the truth of the above statements. He informed the writer that as soon as his companions returned to Norway after their sojourn in the extreme north they all caught cold, but had been entirely free from this ailment during their prolonged absence. The inference is that reproduction of the catarrh microbe had been prevented in the severe cold of the polar region. That cold, while repressing activity, does not always kill pathogenic micro-organisms we know, since virulent typhoid bacilli had repeatedly been found in ice.—[Medical Record.

CYCLISTS' SORE THROAT.—After a "spin" along a more or less dusty road the cyclist sometimes experiences a dry and subsequently sore and inflamed throat (*Lancet*, No. 3906, p. 95). Headache and depression often follow and the symptoms generally stimulate poisoning of some kind. When the bacteriology or road-dust is considered, these effects are hardly to be wondered at. Hundreds of millions of bacteria according to the nature of the locality are found in a gramme weight of dust and the species isolated have included well-known pathogenic organisms. Indeed, there can be no reason for doubting the infective power of dust when it is known that amongst the microbes encountered in it are the microbes of pus, malignant edema, tetanus, tubercle and septicemia. The mischief to riders as well as to pedestrians would probably be largely averted if, as

nature intended, the respirations were rigidly confined to the nasal passages and the mouth kept comfortably though firmly shut. As investigators have shown, the microbes in the air seldom pass beyond the extreme end of the nasal passage, and consequently never to the pharynx or bronchial surfaces. A useful precaution, therefore, in addition to exclusively breathing through the nostrils would be to douche the nasal cavity after a dusty run or walk with a weak and slightly warm solution of some harmless anti-septic.

Dental Excerpts.

A PRIZE FOR CLEAN TEETH.—A man in Maine, it is said, has offered a number of small prizes to the school children in his town who take the best care of their teeth during the summer vacation.—[Medical Record.]

TO RETARD OR HASTEN THE SETTING OF CEMENT.—Pulverized borax, the least sprinkling, will retard the setting of oxyphosphate, and a part of a drop of hydrochloric acid will yield the opposite effect.—[Dental News.]

PAPER TEETH.—Dentists in Germany are using false teeth made of paper instead of porcelain or mineral composition. These paper teeth are said to be very satisfactory, as they do not break or chip, are not sensitive to heat or cold, and are not susceptible to the moisture of the mouth, and from their peculiar composition are very cheap.—[Med. Record.]

BACKING PINS.—Many ways are given for disposing of the pins after the backing is adjusted to a porcelain facing. How is this? With a sharp chisel or graver placed a little up on the pin, but toward the backing, the little particles or shavings fold on to the backing. After cutting around the pins in this way, clip off the extra length with cutting pliers, then the remaining portions can be burnished to the backing, covering any enlargement of the holes that might accidentally have been made, thus precluding the possibility of borax insinuating itself between the metal and facing.—[Dr. Weaver in Dental Weekly.]

TO GIVE FINE FINISH TO GOLD.—After the scratches have been removed with pumice stone, nothing is so effectual as oxide of zinc on a brush wheel. It leaves a beautiful lustrous polish, and does not soil the hands.—[H. H. Johnson in Dental Weekly.

REFLECTED LIGHT FOR THE OPERATING CHAIR.—Fasten a white shade on a spring roller in the usual manner to the top of the window. To reflect the light down on the chair draw the shade out horizontally by means of a cord passing through a pulley suspended from the ceiling or to the wall at the rear of the chair.—[Dental Weekly.

WAXING CASES.—In “waxing up” be sure to oil the surface of wax before using blow-pipe or Bunsen flame to give a final finish to the base-plate. The oil seems to increase the flowing quality of the heated wax and gives to it a smooth and evenly polished surface. Wax-begrimed teeth, after the “waxing up” process, may be cleaned by rubbing them with a cloth dipped in chloroform.—[Dental Weekly.

A GOOD CEMENT.—An excellent cement for mending almost anything may be made by mixing together litharge and glycerine to the consistency of thick cream or fresh putty. The cement is useful in mending stone jars or any coarse earthenware, stopping leaks in seams of tin pans or washboilers, cracks and holes in iron kettles, etc. It may also be used to fasten on lamp tops, or tighten loose nuts, to secure loose bolts whose nuts are lost, to tighten loose joints of wood or iron, or in many other ways about the various kitchen utensils, the range, sink, and in the pantry fittings. In all cases the article mended should not be used till the cement has hardened, which will require from one day to a week, according to the quantity of cement used. This cement will resist the action of water, hot or cold, acids, and almost any degree of heat.—[Dental Brief.

PAINLESS DESTRUCTION OF PULPS WITHOUT THE USE OF ARSENIC.—Dry the cavity out after having removed as much of the débris as practicable without giving a great deal of in; then take a piece of soft spunk, dip it in alcohol (ab-

solute alcohol is the best) and then dip the alcohol laden spunk in crystals of muriate of cocaine, place X in the bottom of the cavity and press a piece of unvulcanized rubber against it quite hard for from one to three minutes, then take out and remove the remaining layers of decay till you thoroughly expose the pulp, and repeat the operation when you will find the pulp has lost all sense of feeling, and you can remove it without the slightest pain.

Be careful to remove all the pulp before filling, as sensitiveness does not return for from ten to fifteen minutes.—[A. J. McDonagh in Dom. Den. Journal.

POLISHING PLATE WORK.—For quickly cutting down or rough polishing rubber or gold plate-work, I find no better method than with the porte polisher, run with the dental engine. By removing the nut, a strip of three-fourths of an inch wide sandpaper or emery cloth may be slipped in the slot, and run as the same would be in a regular polishing lathe, only this device run by the engine offers a more delicate result, as the instrument and handpiece are manipulated on the plate instead of the plate being manipulated against the polisher, as in the case with the lathe. This makes the result very different and the operation a pleasure. A plate may be made ready for a final polish in a very short time without the use of file or knife, and with a clean, delicate and artistic result.—[T. L. Smith in Items of Interest.

THE BEST WAY TO OPEN A TUBE OF PYROZONE.—Place the tube up to the neck in ice water, and let it remain until the paper label can be easily rubbed off, which remove. A large-mouthed bottle should be kept clean and dry for this purpose. A hole is cut in the center of the cork stopper large enough for the end of the pyrozone tube to pass through, just far enough to allow the file to reach the neck where the directions tell us to file. The pyrozone tube as soon as it is removed from the ice water is dried and pushed into the cork, then the cork is put into the large bottle with pyrozone tube inside large bottle, and a sharp file is used. In this way I have had unfailing success. The cork prevents any jar or vibrations to the pyrozone tube, and there

is no explosion that breaks it, as so frequently happens when only the wet towel is used. If the pyrozone tube should explode, the large bottle catches the fluid. The large bottle should be clean and dry, so that if the pyrozone tube breaks there will be no moisture to dilute the pyrozone.—[Dr. Frank H. Field in Items of Interest.

REFINING GOLD SCRAPS.—Dissolve the gold scraps in as small a quantity of nitro-muriatic acid as possible—warming hastens the solution—dilute the gold solution with three times its volume of water, nearly neutralize the acidity by adding small quantities of sodium carbonate. If the acidity is completely neutralized, the gold will be precipitated; in that case redissolve by adding a few drops more of nitro-muriatic acid. Filter the solution, carefully washing it through with water, then add slowly, while stirring, a concentrated solution of ferrous sulphate, previously acidulated with small quantity of sulphuric acid. Set the solution aside for twenty-four hours for the complete precipitation of the gold, then decant the superabundant liquor through filter paper so as to catch any floating particles of gold; wash the precipitate out of the vessel, pouring it through the filter paper; roll the paper up and fuse with flux.—[E. P. Catching in Dental Weekly.

DESTRUCTION OF PULP AND GOLD CROWN BY MERCURIC ACTION WITHIN AMALGAM.—I have been greatly interested in the result produced by an amalgam filling inserted in a lower third molar, which was covered with a gold crown. The entire buccal surface of a right lower third molar was filled in March, 1894. The cavity extended below the gum margin and was not very deep. A few months after its insertion the patient returned and complained of a peculiar and very unpleasant taste about this particular tooth; it became very offensive. I attributed the annoyance to oxidation or an acid condition of the fluids of the mouth affecting the amalgam. I suggested that crowning the tooth with gold would no doubt prevent any further inconvenience, thinking that more convenient as well as more permanent. The patient permitted the operation as suggested, and it was entirely successful; the unpleasantness became entirely elimi-

nated. This patient returned a few weeks ago, being absent four years—quite a long time without consulting a dentist. Her visit was for the purpose of having her teeth examined, on account of some slight inconvenience. Imagine my amazement when I beheld the gold crown entirely disintegrated and porosity everywhere noticeable, and the slightest effort removed it. This was surely the result of a physical and possibly a physiological action of mercury. I have always felt that there are idiosyncrasies whereby amalgam or mercurial medicaments are contra indicated, and I believe that this experience will materially assist to bear out this hardly settled question. It has taken about four years for this change to occur—pulp is dead, incipient decay around a part of amalgam filling.

I have reprepared cavity, cleansed and antiseptically treated canals, filled them up with powdered asbestos, saturated with a 50-per-cent. solution of silver nitrate; filled tooth with gutta-percha, and made new gold crown, 21-k., and set it. Saw patient recently and she is enjoying life from a masticatory standpoint, and I am thinking, conscientiously and scientifically which is to blame, McLean or mercury? Some stomatological brother will confer a favor if he will explain.—[W. T. McLean in Ohio Den. Journal.

TREATMENT AND FILLING OF ROOT-CANALS.—It is true that in touching on this subject I may be accused of "harping on a mouldered string," but I feel it my duty to make known my success in this line, trusting that it may be of use to some one of my brethern in the profession, inasmuch as their successes told in the *Brief* have been of use to me.

In treatment of a dead and putrescent pulp I enlarge the opening into the pulp chamber, then open as far as possible the root-canals. I then inject into the pulp chamber a little weak solution of sulfuric acid, followed by a solution of bicarbonate of soda. This effervesces and brings with it all the débris. This may be repeated till all is out. Now wash out with a 50-per-cent. solution of borolyptol or some other antiseptic solution and warm water, and dry thoroughly with cotton shreds wound on a broach. Pack the root-canals with a paste made of iodoform and oil of eucalypt-

tus, working it thoroughly in with a blunt broach. (The eucalyptus completely deodorizes the iodoform.) I then seal up with sandarac, and dismiss the patient. After four or five days I open, and with a hot-air syringe dry out thoroughly, and insert gutta-percha cones dipped in thin chloro-percha, and press to place. This is covered with a thin layer of cement and the cavity filled with amalgam or gold.

I have followed this course of treatment for four years, and do not recollect but three or four cases of failure in more than two hundred treatments.—[T. A. Campbell in Dental Brief.

TO REPLACE A BROKEN TOOTH.—Where a tooth or block has been broken from a vulcanite plate it can very often be reliably repaired by drilling a cavity in the rubber just under the tooth-pins, having sufficient undercuts for the retention of the material. Then by filling these undercuts with amalgam freshly mixed, and filling the rest of the cavity, covering the pins with soft solder—scraps of Weston's or Watts' metal preferably. This is accomplished by holding the tooth in place with plaster, or with the index-finger of the left hand, protected with a pad of asbestos, while with any small instrument that will serve as a soldering-iron the solder is melted, using muriate of zinc as a flush. The work will be quite stable as soon as the amalgam has time to harden. The advantage of the amalgam is that it forms a base upon which the metal used as a solder will flow, and averting its tendency to ball up and pull away from the cavity walls in the vulcanite. The solder will form a good union with the amalgam.—[Dr. Atkinson in Amer. Den. Weekly.

A BASE PLATE MADE OF IVORY.—In looking over a collection of ancient dental prosthetic appliances in the possession of Dr. Barrett, of Buffalo, I came across a denture which struck me as being exceedingly interesting. It was made about the beginning of the present century, and, I understand, was worn by an English military officer, who evidently used it for some years. It consists of a base plate carved of hippopotamus ivory, and six of the teeth are human crowns cemented onto this plate with posts. It is a full upper and lower denture, in which the old spiral spring

arrangement is used. The interesting feature is not from the prosthetic side, but from the pathological side. We are all familiar with the belief once pretty generally held and which I think is still held by some, that the disorder known as caries of the teeth is due to some morbid manifestation of the internal vital conditions of the tooth, or that internal vital action plays some part in it, and that an inflammatory condition accompanies the carious process. I found in this denture a number of cavities of decay, situated in the sulci of the masticatory teeth carved out of the hippopotamus ivory, so that the question of vitality in relation to caries in this instance is absolutely eliminated as a factor in its causation. That fact, however, needs no demonstration at this time. In addition to the manifestation of caries in the artificial denture, there was another and more important disease manifestation, that of erosion—not of the natural teeth used as crowns, but of the ivory of the base plate. We have in this inert material a perfect example of these two diseases. The erosion is not upon the teeth at all, but is on the ivory base plate. There is some erosion at the cervical borders of the teeth, but that to which I refer is on the plate.—[Dr. E. C. Kirk in Dental Cosmos.

News Miscellany.

CONSUMPTION OF AIR.—It is computed that when at rest we consume 500 cubic inches of air a minute. If we walk at the rate of one mile an hour we use 800; two miles, 1000; three miles, 1,600; four miles, 2,300. If we start out and run six miles an hour we consume 3,000 cubic inches of air during every minute of the time.—[Medical Record.

A LAW TO REPLENISH POPULATION.—A vigorous attempt is about to be made to prevent the extinction of the population of Madagascar. It is proposed that next year every bachelor of 25 and over who cannot show that he is the father of at least one child, legitimate or illegitimate, must pay an annual tax of \$3, and every childless woman over the same age must pay half this amount.—[Ex.

A DETERMINED SUICIDE.—A man was arrested for poaching on fish preserves by means of dynamite cartridges. He decided to take his own life by the same means. He placed the cartridge under his chin, but the effect of dynamite explosions being most marked downward, the chief effect was to damage the hand that held the cartridge and the other hand to a less extent. He then lay down on the ground, placed a cartridge on his chest, and with great difficulty, owing to the injury to his hands, struck a match after many attempts, and applied it to the fuse. The thorax and abdomen were completely emptied of their contents, and the corresponding parts of the vertebral column were also missing. The other parts of the body were not injured.—[Medical Press and Circular.

THE LAUGHING PLANT.—In the *Montreal Pharmaceutical Journal* for May is a description of the laughing plant and its effects upon man. It grows in Arabia and derives its name from the effects produced by eating its seeds. The plant is of moderate size, with bright yellow flowers and soft velvety seed pods, each of which contains two or three seeds resembling small black beans. The natives of the district where the plant grows dry these seeds and reduce them to powder. A small dose of this powder has effects similar to those arising from the inhalation of laughing-gas. It causes the soberest person to dance, shout and laugh with the boisterous excitement of a mad-man, and to rush about, cutting the most ridiculous capers for nearly an hour. At the expiration of this time exhaustion sets in, and the excited person falls asleep, to wake after several hours with no recollection of his antics.--[Medical Record.

THE PREJUDICE AGAINST THE TOMATO.—The tomato alarmists are at their old tricks again. Dr. Andrew Wilson of London says: "I have received several letters of late, reiterating a question I might well be tired of answering, 'Do tomatoes cause cancer?' But for the fact that one takes a pleasure in stamping one's foot on a misleading statement calculated to prejudice people against a vegetable food which is entirely healthful and safe, I should grow weary of asserting that not a jot or tittle of proof has ever been

offered in support of the outrageous statement noted above. One might as well allege that the cabbage causes cancer, for there would be no more proof of that assertion than there is proof to be had concerning the tomato myth. I can only repeat that the tomato is an excellent vegetable enough, and may be partaken of by those with whom it agrees, without any fear of its initiating any disease whatever."—[Medical Record.]

Laughing Gas.

SHE.—What is meant by the saying that a man is convalescing? He.—That he has outwitted his doctor, I suppose.—[Topeka Capital.]

"SPEAKING of getting a tooth pulled," said the Cornfed Philosopher, "that is one instance where a man is bound to stay and see the thing out."—[Indianapolis Journal.]

"I HAD supposed until yesterday, Doctor, that the days of the bleeding of patients was past." "So they are. But what has changed your mind?" "The bill you sent me."

WALKER (thoughtfully).—The doctor said I was to give you iron as a tonic, but I've forgotten just how he said to give it to you.

MRS. WALKER (promptly).—Are you sure it wasn't in the shape of a wheel.—[Truth.]

"DOCTOR, I don't know what's the matter with me. I can't sleep nights any more." "Um! Let's see; what is your business?" "I'm a night watchman." "Ah, your case is a remarkable one. I must write it up for our Monthly Medical Record."—[Chicago News.]

A WARNING.—"And," were the concluding words of the professor's lecture to the medical students, "do not promise too much. I knew a physician of real ability who promised a patient whose legs he had just amputated that he would have him on his feet within two weeks."

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

ANOTHER RICHMOND IN THE FIELD.

CALIFORNIA, embracing as it does over 1000 miles of the western seaboard of the United States, is certainly a State of magnificent distances, and its greatest centers of population are widely separated by the topographical peculiarities of the country. Therefore it is not surprising that the meetings of our State Dental Association are not attended by many members of the profession residing at a distance from the place of meeting. Few men can afford the expenditure of either the time or money necessary to journey several hundred miles to attend its meetings, and thus distant sections of the State, except through the efforts of their resident dentists, are denied the benefits to be derived from collaboration, discussion and presentation of dental ideas, discoveries, and manipulative procedures.

It is perhaps the realization of the foregoing fact, combined with the professional zeal and enterprise of our southern brethren, that has led them to organize from the union of the Southern California Odontological Society and the Alumni Association of Los Angeles a new factor in dental society development, known as the "Southern California Dental Association." We congratulate the promoters of this new organization most heartily, and wish for this society a long life of action and well-repaid endeavor in the vast field of literary and scientific dental progress that lies untried before them.

Judging from the character of the papers (which we will be pleased to print in future issues of the GAZETTE) read at the first annual meeting of this society, its literary

standard has been placed on a plane of unusual excellence, and when its clinical capacity, on the proper development of which too much labor cannot be expended, has been properly exploited, we shall expect to see annual meetings held in the cities of the South that may fairly rival those of our State Society, and make the members of that organization look well to the laurels it has already won.

The GAZETTE, being an ardent champion of reform in both the character and execution of our State dental laws, is pleased to note that this subject was brought before the meeting above referred to in the president's address, and the appointment of a legislative committee to take action in regard to the matter was advocated. This may be only one of the straws showing in which direction the wind blows, but there are others also tending the same way, and we hope a gale of reform may soon strike the structure of our State law which will blow away the wornout precedents of a musty past and leave a clean, active and efficient set of laws to guide and regulate the future practice of dentistry in the State of California.

DR. GUILFORD'S PAPER.

WE publish elsewhere in this issue of the GAZETTE a paper by Dr. Guilford, read before the National Association of Dental Faculties at its meeting in September, and earnestly call to it the careful attention of all those who are honestly interested in the study of what is best and most progressive in dental education. The ideas advocated, considered from any standpoint not biased by prejudice or personal considerations of gain and popularity, are, to say the least, perfectly practicable, just and beneficent. Could they be put in execution, together with recently presented ideas for increased literary proficiency, the future of dentistry as a liberal, honest and progressive profession would cease to be even as problematical as it is today, and many of the abuses tolerated by a patient and not too discriminating public, which now besmirch the honor of the

profession and vastly retard its proper growth, would become but unpleasant memories of the swift-receding past, and such a thing as an inefficient, bungling, uncouth dental operator would become a great and much-to-be-pitied rarity in our professional ranks.

BOOK REVIEW.

ORAL PATHOLOGY AND PRACTICE. A Text-book for the Use of Students in Dental Colleges and a Hand-book for Dental Practitioners, by W. C. Barrett, M.D., D.D.S., M.D.S., Professor of Oral Pathology in the University of Buffalo, Medical Department, etc., etc. Published by the S. S. White Dental Mfg. Co., Philadelphia, 1898.

This book of 65 chapters and 234 pages will undoubtedly command considerable attention and elicit much comment, both favorable and unfavorable. The subject-matter is well classified, and a unique idea is carried out in printing the dominant idea of each paragraph in bold-faced type. That the book is characteristic of the author and bears the imprint of his strong personality in every chapter is clearly evident; but, also, that many of the ideas expressed will not meet with the approval of many equally eminent men is certain.

We would call attention particularly to the chapter on "Diseases of Dentition," in which the chief idea of the author seems to be that unnecessary stress has been laid on the apparent relationship between coincident infant mortality and the eruption of the deciduous teeth. We are led to believe by study and observation that dentition and the diseases certainly owing their origin to it are largely responsible for the high death-rate among children, and therefore think that many will differ with the author on this question. We regret the fact that the lesions of the permanent dentition seem to have been entirely omitted; a fact which must lead to the poor mental equipment of the student who depends too largely on this book for information.

The chapter on the treatment of alveolar abscess contains some advice we do not think will be followed by many experienced practitioners, and the author's classification of pyorrhea alveolaris among the *incurable* diseases is certainly most peculiar in view of the experience of many living ope-

rators, who positively assert that "pyorrhea can be cured." The book, however, so largely expresses the individual opinion of the author that it has a distinctive value from this fact alone, in view of his wide reputation and great experience, it will undoubtedly find an acceptable place among the college text-books.

A TREATISE ON PLATELESS DENTURES. By C. A. Samsioe, practicing dentist in Stockholm, Sweden. Translated from the Swedish by D. O. Bell. Forty-eight illustrations. Published by the author at Stockholm, 1898.

In giving to the profession of dentistry his method of making pivot teeth and bridge-work or plateless dentures Dr. Samsioe has certainly spared no pains to give a clear and careful explanation of his methods and the objects he hopes to achieve, but also devotes considerable space to a consideration of other methods of accomplishing the same results.

The book is divided in three sections: The first historical, devoted to the history and merits and demerits of various styles of crowns and bridges. It will repay reading for the historical data it contains. The second section is devoted to a consideration of the treatment of normal and diseased roots of teeth in relation to their restoration to usefulness.

In the third and largest section of the book the author describes with great conciseness and attention to detail his own method of making pivot teeth and plateless dentures.

While this method may have its place in prosthetic dentistry, and might possess exceptional serviceability in certain emergency cases, we doubt if it will meet with general approval. In cases when serviceable work at a low cost is demanded it may answer the desired purpose, but we doubt if it possesses sufficient merit from either an aseptic or esthetic standpoint to commend its adoption in general practice, at least in the United States.

The author's integrity and faithfulness to detail are at least commendable, and the work is worthy to be added to any dental library.

PERSONAL.

DR. WM. J. YOUNGER has returned to Chicago.

DR. C. A. DEVLIN, of Vallejo, spent a few days in the city recently.

DR. W. F. CORBETT, of Minneapolis, has located at 224 Post street.

DR. R. L. WAIT, of Sacramento, spent a few days in the city recently.

DR. D. M. GARRISON, of San Luis Obispo, Cal., is in the city on a vacation.

DR. A. H. SUGGETT, of Marysville, has been visiting San Francisco recently.

DR. D. E. NASH, of San Jose, lately spent a short vacation in San Francisco.

MISS DR. ROBINSON has moved her office from the Parrott building to 717 Sutter street.

DR. W. W. EASTMAN, of Sonora, Cal., has returned from a visit to his old home in Maine.

DR. E. L. HUTCHINSON, of Hilo, H. I., has returned home from a six-weeks visit to Chicago.

DR. E. C. PHELPS has returned from the Klondike, and resumed practice at Reno, Nevada.

DR. C. B. TITCOMB, after a short visit, has returned to Placerville, where he is interested in some very good mines.

DR. W. A. MOORE, of Benicia, Secretary of the State Board of Dental Examiners, was in the city during the month, and addressed the October meeting of the San Francisco Dental Association.

DR. P. C. ERHARDT, who has been a resident of San Francisco for a number of years, is en route for Dresden, Germany, where he will be an associate of Prof. Hafyahnarzh. The Doctor has promised to act as correspondent for the GAZETTE.

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Original Papers.

A REVIEW OF THE WORK OF
PROF. GREENE V. BLACK, M.D., D.D.S., Sc.D.

BY J. FOSTER FLAGG, D.D.S., SWARTHMORE, PA.

[PART THIRD.]

IN my Part Second of this review I referred at short length to the matter contained in pages 559 to 567 of *Cosmos*, July, 1895; but "scientific" (?) as this may be, it would seem that science is out-scienced as we peruse pages 567 to 571.

It is noted that the quarter of one per cent. of zinc makes *decided* increase in "flow," and it is argued from this that "the results of this experimental work" are "something of a monument to the integrity, skill and strict fidelity of the men who compounded the alloys."

The "makers of alloys for amalgam" said that "they used pure metals," and "here is unexpected evidence that they have done so."

If *this* is scientific logic, it seems to me conclusive evidence that this branch of logic would bear revising.

What has "one-fourth of one per cent. of zinc" or "three per cent. of platinum" to do with the purity of the silver or the copper or the gold as components of amalgam alloy? and did the "say-so" (if they said so) of the makers of alloys cause the tin to be "pure"?

In the parlance of the day it seems to me that all this

NOTE.—The editor and publisher disclaim responsibility for the views or claims of authors of articles published in this department.

integrity-monument business is pure "taffy," based upon a most unsubstantial foundation.

That all the metals used in making amalgam alloys, or that have been used for fifty years have been "pure"—as this term is accepted metallurgically—I think will not be disputed, as, when silver is required for amalgam alloy making, "bar silver" is either rolled or granulated; if gold is required, "fine gold" in plate or ribbon is used, as a rule; and if gold "scraps" are used the metals admixed are either silver or copper, and these are "pure."

The copper used is either wire, sheet, granulated or bar, "pure" (as found commercially), and there is no incentive to have it otherwise.

The tin is the most impure of all the metals used, but it is such as is used as "tin" in all work except that strictly "chemical."

I think all this is well known and recognized as *usual*; and while it does not detract from the "integrity, strict fidelity," etc., of the makers of alloys (each one of whom makes "the best"!) it does not seem requisite that this state of things should be any further assured by such "unexpected evidence" as that presented by Dr. Black.

The "note of warning" given by the investigator "against jumping" is timely, and, judging from existent conditions, seems to have been universally heeded!

On page 569, after a very unsatisfactory attempt to account for "bulging" of amalgam from cavities in positions where no "stress" can possibly be brought, a little touch in support of the *chemical combine* is given with its ubiquitous little * (asterisk).

If the union of metals in the forming of amalgams is *chemical* the results are certainly worthy of special notice to "scientists," for it is the only known instance in which the components of the "chemical compound" in any and all proportions of any and all of each are made into results which are, each of its class, *practically the same*.

Truly, it reminds one of the combinations of nitrogen and oxygen, which, united chemically in any proportions,

produce so nearly the same results as, *like amalgam*, to subserve but one given purpose!

The next point discussed is the "spheroiding of amalgam, so-called," and in no portion of the whole series of papers does the absolute incompetency of the gentleman for the work he has undertaken more palpably appear, while the conclusion to which he arrives (see page 571) is so absolutely impossible of utilization as to render it simply farcical to antagonize it.

He says "the phenomenon from which this term *spheroiding* has been mostly derived seems to be the disposition of amalgam fillings to rise up in the center in rounded form, but partly from the difficulty experienced in making amalgam fillings with perfect margins."

If the disposition of *anything* to "rise up in the center in rounded form" is not *spheroiding*, I would ask, what is it?

And it is this tendency—and *this alone*—which has been noticed by plastic workers, and which, after being carefully watched—not for a few days or months, as we are told was the "work" of the "investigator," but for years—until after consecutive notings of fillings of soft alloys, notably "Walker's" (70 tin, 30 silver), the gradual "tendency to rise up in rounded form" of fillings was recognized not only in buccal cavities but in articulating cavities where the long-continued force of mastication was powerless to prevent it.

It was to account for *this* that the tendency to spheroid was accredited to the *slow molecular influence* of the mercury, with its incontestable spheroidal attribute.

And now Dr. Black has a "notion" that "this term has been derived from a misinterpretation of the phenomena seen," because he, having made blocks of amalgam with square corners of a mass that would fairly *stand alone*, did not note spheroiding.

Had there been a rounding of the corners in such an experiment I would have inclined to attribute it to *gravitation* rather than to *tendency to spheroid*; and as it was,

I should merely think that the silver and tin were able to maintain integrity of contour, while the molecular tendency to spheroid was not affected by the experiment.

I should regard all the work described on page 570 as proving no more in this matter than would the *greater weight* of a gold filling introduced into cavities in ivory prove it to be the *better* filling for the saving of the tooth.

But it is in the last paragraph of this July paper (page 571) that we find the conclusion to which I have alluded as "absolutely impossible of utilization."

Dr. Black says "a large proportion of the amalgam fillings made are placed in cavities so prepared that the surface on which the filling rests, *the seat of the filling*, is too small to support the stress which comes on the area of surface exposed to the stress of mastication; or the seats are so rounded that the readily yielding material allows the mass to be slowly tilted from side to side, or slightly moved. In either case the perfect margin is lost, and the filling becomes leaky."

In reply to this I would say that in "a large proportion" of such cavities as are filled with amalgam, either primarily or as final resort, after one or more gold fillings have failed, the preparations of the cavities have to be made *as best one can*, rather than *as one would*, and that, in such cases as have to permit this stress upon their surfaces, the marvel is the great amount of service they give, and the length of time through which they endure.

I venture this as the experience of decidedly the *many* as against that of decidedly the *few*.

Again, Dr. Black says: "Most dentists seemed to have supposed that amalgam fillings were the easiest fillings to anchor safely, but as a fact they are the most difficult." Is that "science"? Is that sense?

I think I have introduced a sufficient number of gold fillings which now, after thirty—and some forty—years of service, demonstrate how they were anchored, and I think it will be conceded that I have introduced vastly many more amalgam fillings than did ever Dr. Black, and I can

but say that *if* amalgam fillings are *the most difficult* to anchor, the results of the last thirty years are a "monument" to the skill of the amalgam workers, for it is simply amazing, *under the circumstances*, how well many of the most dreadfully doubtful among these fillings hold to their anchorage!

And, finally, he says: "Cavities prepared to receive amalgam fillings should have a broad, flat seat at right angles with the direction of stress, and parallel side walls. The form of a box is the typical form for a cavity for amalgam."

Again I ask is that "science"? Is that sense?

Is it not enough to ask *how* the form of a box can ever be given to such cavities as should usually be filled with amalgam?

Such cavities not infrequently impinge upon the mesial, buccal, distal and occlusal faces of a tooth, and I would ask, what kind of a "box" could such a cavity be shaped like?

But that is not all—*not by any means*; "a box," such as Dr. Black *must* mean, when no more definite shape is given, would have four sides, straight and flat, parallel in pairs, with a flat, square bottom and with eight corners; in short, it would be a rectangular parallelopiped, and I would ask if it would be *possible*, not to say desirable, that such should be made of any cavity of decay?

GUAIACOL AS A LOCAL ANESTHETIC.

BY DR. A. O. HOOKER, SAN JOSE, CAL.

AS time wears on we are making many important discoveries in dental medicine, and learning much of renewed interest about some of the remedies which we already have at our command.

Pure guaiacol is in the form of hard white crystals, but, as generally sold to the trade, it is a clear, colorless, oily liquid, with sweetish burning taste, pungent odor and very

inflammable. It is the active principle of creasote, of which it forms from 60 to 90 per cent. It is a powerful disinfectant and germicide, and for dental uses is of great value.

As an obtundent for sensitive dentine I believe it to be fully equal to cocaine. Placed in a sensitive cavity of decay and thoroughly dried by the use of the hot-air blast, it will penetrate far into the tubuli and render subsequent excavation almost painless.

When preparing cavities on the labial surfaces of the incisors and buccal surfaces of the bicuspsids, extending well up under the gingival border, a drop of guaiacol placed thereon will enable the operator to tie ligatures or force the gums out of the way with little or no pain. It is also a good styptic, and in those cases just mentioned aids materially in arresting any hemorrhage which may follow.

As a disinfectant and germicide guaiacol is a valuable agent in the treatment of septic root canals. A little more than a year ago we destroyed the pulp of a tooth by the use of arsenic. Twenty-four hours afterward we removed the arsenic, opened up and washed out the cavity with warm water. We then placed a drop of guaiacol in pulp canal and sealed up with gutta-percha. Thirteen months subsequent to this appointment the patient returned and we found the pulp canal and its contents in a non-septic condition, having given the patient no trouble whatever.

For use hypodermically for the extraction of teeth, guaiacol may be prepared in one to 10 or 20 parts of sterilized olive oil. For this purpose it is safer than cocaine, and can be used in much larger quantities without danger of producing toxic effects.

It will also be found useful in connection with arsenic in the destruction of the pulp of a tooth, allaying or preventing inflammation and pain while the arsenic is doing its work.

There are many other places in the practice of dentistry where guaiacol will be found very beneficial; but we have

mentioned a few of them merely to call attention to its beneficent effects as a local remedy.

At the present time the public is looking anxiously to the dental profession for anything and everything which will in any way lessen the pain and quiet the fear of dental operations, and all efforts on our part looking in that direction will surely be appreciated by our patients.

SYPHILITIC CONDITIONS OF THE MOUTH.

BY FRANK C. PAGUE, D.D.S., F.S.C., SAN FRANCISCO, CAL.

[Read before the California State Dental Association, June 22, 1898.]

I KNOW of no subject of more interest to the general practitioner of dentistry, no subject less generally discussed in our State and local societies, no subject with which the dentist should be more familiar, than that of syphilis, so as to enable him to intelligently diagnose inflamed conditions of the mouth and gums coming to him for treatment.

What is syphilis? In the American Text-book of Syphilis and Diseases of the Skin, for 1898, Dr. James S. Howe says: "Syphilis is an infectious disease affecting the entire human economy; and may be acquired either by direct or mediate contagion, or by inheritance. It is chronic in its course, and may invade every organ and tissue of the body. While displaying its characteristic symptoms in a somewhat definite order, the latter may at times show marked change, while the specific symptoms themselves may appear in one or several organs and tissues at the same time. It belongs to that class known as chronic infectious granulomata, and has many points in common with leprosy, tuberculosis, glanders, etc. That syphilis by some special virus or morbid secretion gains access to the system is an undisputed fact, but what this virus actually is has not yet been definitely ascertained. The specific virus having gained access to the system, so far as any local or constitutional evidence can be made out, it shows for a time no manifestations of

its presence. From the moment however that the virus has effected its entrance it may be confidently asserted that the patient has syphilis. What minute pathological changes are taking place, either at the point of entry or in the system-at-large, are at present unknown, but that such changes are taking place will be evidenced later by the appearance at the point of infection of a papule or sore, which is characterized by induration of the lymphatic glands in direct communication with this indurated sore. The period of time which elapses between the date of infection and the appearance of the initial lesion is known as the first period of incubation. The first period of incubation ends with the appearance of a primary lesion, and is followed by a second period of incubation, lasting from the appearance of the initial lesion to the first outbreak of cutaneous manifestations. Authorities differ as to whether syphilis is a purely local or constitutional disease at the time of the appearance of the initial lesion, but the consensus of opinion seems to be in favor of its being already a constitutional affection. Extirpation of initial lesion, and even of the indurated glands connected with it, being followed, with perhaps rare exceptions, by evidences of general systemic poison. Experiments with bacilli of various infectious diseases have proved that the presence of these bacilli at some point in the living tissue, for only a few hours at most, is sufficient, even though the point of inoculation be destroyed or totally extirpated, to cause profound systemic infection. If this be the case, why then should we suppose that a person has escaped general infection from the syphilitic virus merely because the virus lies quiescent for awhile as regards symptoms which we can observe, or because its manifestation is at one particular point, and that the point of entry? The proofs of syphilitic conditions appear, as a rule, toward the end of the second period of incubation, and consists of malaise, anemia, loss of appetite, rheumatoid pains in the muscles, bones and joints, synovial effusions and other varying symptoms which point unmistakably to general systemic intoxication. The late

Ricord, in considering the evolution of syphilis, divided it into three stages which he called the primary, the secondary and the tertiary. The primary stage embraced the two incubation periods mentioned above, and lasted from the moment of infection to the outbreak of the first cutaneous lesions. The secondary period lasted for about a year, during which time we might expect various skin and constitutional manifestations, the skin lesions being superficial in character. The tertiary stage followed, and was marked by the involvement of the deeper tissues and structures as well as the viscera. If syphilis pursued this course in the regular manner we should have no difficulty in ascribing every manifestation of the disease to a particular period; but clinical experience and observation teach us that such is not the case. If it were so, we might expect a regular course in the manifestations of the disease. Thus we should expect macules, and after them papules, and in course of time pustules, tubercules, gummata ulcers and a successive involvement of all the organs and viscera of the body. Such a course, happily for the patient, rarely takes place. Indeed, the accidents of tertiarism are of uncommon occurrence nowadays, provided the patient is naturally healthy and has proper treatment."

MODES OF CONTAGION.

Syphilis when acquired by mediate contact is the result of inoculation received by virus from some intermediate object. The number of cases thus acquired are very large, but it will serve our purpose to mention briefly the principal causes of such infection. Cups, knives, forks, spoons and other utensils in common use at the table have been not infrequently the bearers of the virus which has resulted in syphilitic inoculation. So, too, articles of linen in general use, cigars, cigarettes, and food or candy conveyed from one mouth to another have given rise to infection. Tobacco pipes, whistles, and musical instruments have each and all conveyed the virus from one mouth to another. The disease has likewise been conveyed from one person to another by the lancet of the vaccinator, by different instru-

ments used by the physician and dentist, by cupping, tattooing, skin grafting, etc. From the foregoing it will be seen that syphilis may be acquired in many and various ways. The mouth, next to the genital region, is the most common sight of the initial lesion, and inoculation may take place either by direct or mediate contagion. This statement seems natural enough when we consider the frequency of mucous patches of the lips and buccal cavity, the virulent properties of their secretions and the ease with which these secretions become mixed with the saliva and transferred from mouth to mouth by kissing or by articles contaminated by a syphilitic person. The lips are naturally the most common site for chancre of the mouth, while the tongue, gums and tonsils follow next in order. This brings me to a description of a few cases in practice which I shall relate. Usually patients thus afflicted are naturally very sensitive regarding their condition, and will not acknowledge same to you as a dentist unless conscious of your diagnosis of it. Who of you have not seen those red, angry, inflamed patches on the tongue, gums, cheek or roof of the mouth? and how many of you have stopped to consider the possible cause, and have taken necessary precautions for thorough sterilization of instruments after use? We cannot be too *careful* in sterilizing our instruments, and such as our scalers and forceps should receive more than *ordinary* consideration by boiling in antiseptic lotions and drying in heated antiseptic sand.

Mr. F. M., a seal hunter in Alaskan waters was inoculated early in the season's hunt and received little treatment for more than four months after inoculation. It was at this time that he presented himself for treatment of a left superior cuspid that had all the symptoms of pyorrhea, gums soft, spongy and receding, pus oozing from the gingival border of the gum, and tooth so sore to the touch that he insisted upon extraction. The lateral approximating was likewise affected, but not to the same extent, so that I had hopes of saving it. Examining his other teeth, I found them covered with a thick, soft tartar, of starchy

consistency, and the gums greatly inflamed so that they bled to the touch. Closely examining tissue surrounding cuspid with a silver exploring instrument, I found quite a deal of necrosis, which convinced me extraction was the only proper procedure. The teeth were all first thoroughly cleaned, and gums antiseptically treated, patient rinsing mouth frequently with three-per-cent. pyrozone during the procedure. After the cuspid was extracted I cut away all the necrosed bone, which I found extended to and around the lateral as well, and which I also extracted. I then wiped cavity out with pure sulphuric acid, which dissolved what dead bone was left, and nature did the rest, the parts healing as ordinary extraction. Why this condition should centralize in this particular place, and not be found about any of the other teeth in the mouth is a question. But little red, inflamed mucous patches were to be seen in the roof of the mouth, on the cheeks and tongue. Systemic treatment, which has been faithfully followed for more than two years, has placed the patient in such a condition that no further development of previous condition has appeared in the mouth.

Mr. M., thirty years of age, a German, married, consulted me December 30, 1897, for a condition that I immediately diagnosed as tertiary syphilis. The history of his condition he gave to me, was, that while in Germany in April, 1894, he became inoculated, and a few days thereafter noticed trouble with his throat; syphilitic conditions immediately developed, and he was put under treatment for same in July of that year, going to Mendorf, where he had mercurial treatment and strong sulphur baths, the mercury being rubbed into his system. He stayed there six weeks, when pronounced cured, and in September, 1894, returned to the United States, where he consulted a specialist, who put him upon mercurial iodides for a year, then he had no treatment until early in 1897, when nose trouble occurred. A month's treatment caused that to apparently disappear, but later in July it returned, had nose operated upon by a specialist, particles of the bone being removed, but it

failed to heal. Patient consulted me for a supposed ulcerous condition of right superior cuspid. Examination disclosed an open sinus at the apex of root, and an amalgam filling in a posterior approximal cavity. Pressing the gums caused a discharge of pus from around the necks of the cuspid, lateral and central (right side) and with thumb and forefinger on either of these three teeth I could move the other two, showing the process encircling these teeth had detached itself. Taking a silver probe and passing it through the open sinus at apex of cuspid I was able to pass same backward into the antrum, and again upward apparently through floor of nose, and syringing the same with antiseptic washes through the sinus the water rushed through and out of both nostrils. My opinion was that the pulp of the cuspid became devitalized from the filling, although placed nine years previously, and that the pus had burrowed itself up, affecting the nose, and back into the antrum, before coming to the surface of the gum; also that the abscessed condition of the cuspid was the cause of the trouble in the nose, and that if the loose teeth and detached bone were removed the nose trouble could immediately be broken up. But the specialist treating him did not apparently agree with me, and led the patient to believe that one condition had no connection with the other, and that the teeth could be saved, so he continued treating the nose until the latter part of April, the teeth remaining supported by the surrounding gum tissue, but gradually changing in position until a source of constant annoyance. The 30th of April he came to me and said his physician desired me to remove the cuspid, so that he could more directly get at the seat of trouble in the nose to remove the necrosed bone he had discovered. I extracted the tooth and advised extraction of the central and lateral at the same time, but patient would not consent. Four days later he returned, stating his physician had gone East on a month's trip, and asked me to treat him as I thought best. I immediately extracted the other two teeth, laid back the gum, which readily detached itself from the process, and

with a pair of heavy pliers removed this piece of process [exhibit]. I then wiped out cavity with pure sulphuric acid to break down or detach other necrosed bone, and three days later removed the remainder of this bone [exhibit] which took in the entire floor of the nose. This plaster model [exhibit] was taken the following day by pressing soft modeling compound into the cavity and then taking an impression with plaster of paris in the usual way, the whole coming away together. After removing all soft and porous bone, I treated the cavity from day to day by washing with sulpho-naphthol (one drop to one ounce of water), and then syringed with three-per-cent. pyrozone and dressed by packing with borated gauze, sprinkled with loretin powder, preferring same to iodoform gauze, because patient objected to the odor of iodoform. This powder [exhibit] is tasteless and odorless. It is claimed for it as a dressing in such cases that it has the same healing properties as iodoform, and my experience with it has borne out such statement. Besides seeing and dressing the cavity daily, I put patient under treatment, but six days later he got his feet wet and took to his bed with rheumatism, when his family physician took up treatment of his condition. I have seen him but occasionally since, when called to his house to dress the wound. Healthy granulations have taken place, and if he receives proper treatment nature will soon restore much of this lost tissue and his features will not be marred.

In treating two other patients recently, I have diagnosed syphilitic conditions, one being a young Englishman en-route to Japan, who was inoculated in London some three months previous. This person, although of robust and muscular build, found his system fast yielding to the ravages of disease. These same mucous patches were to be found in the roof of the mouth, on the tongue and cheeks, while his gums were in a greatly hypertrophied condition, and two of the anterior teeth were quite loose. After cleansing his teeth and treating his gums, I suggested

systemic treatment, recommending a specialist whom he was glad to consult.

The other case was of some two years' standing, but, having received constant treatment, was in a more favorable condition; while in the mouth I found that every attempt had been made at thorough antiseptic treatment, the gums being more healthy, and the teeth firm, but the condition was apparent by two or three inflamed mucous patches on tongue and roof of mouth.

DISCUSSION.

Dr. J. L. Asay.—Some of you, perhaps, have not considered the close relationship between general medicine and dentistry. The paper exhibits that form of education now which has become necessary for the dentist to possess, and shows conclusively that the future dentist must be well posted in pathology, dental surgery and the allied sciences of medicine and general surgery; and it indicates, too, that the time must soon come when the dentist will no longer be a tooth-pounder or a plate-boiler, but that he must possess some knowledge and skill to determine what diseases are and when interference is necessary. This is one of the diseases that has always been supposed to belong to the domain of general surgery as it is in its general constitutional forms. But there are occasions when the specific virus finds ingress into the mouth and produces chancres in the mouth the same as it does any other part of the system. It is not always to be supposed that syphilis is what we would call a vice, because there are means of communication from one person to another in the ordinary innocent forms of life. As the paper has said, it is carried on instruments, dental instruments; it is carried in the cups and in the glasses in which we drink, the spoons, and the knives and forks with which we feed ourselves; it is carried on the linen of the napkin. In one instance that I know of it was carried by a comb in the hair where the chancre appeared right in the forehead. That is one instance of the communication of that disease. It is an infectious disease. We do not know—at least we have never been able to find—the

specific bacteria to produce syphilis, but we know its effect; we know its constitutional effect. We know the effects as they result in general surgery from the ordinary primary sore—that is, the local effect. We know its effect as it gets into the general system, courses through the blood, seeks out every avenue until it produces a rotten mass wherever the specific virus is mostly manifested. It produces not only diseases of the skin, which is shown from a month to six weeks after the primary infection, when we see this roseata on the skin, we see mucous patches in the mouth, we see the sore throat. These are the constitutional effects of syphilis in the secondary stage. Let it go on until the third stage is reached. It is the third stage that has been reached in the case reported by Dr. Pague. It is that stage where the periosteum becomes affected, where the bone becomes necrosed. There is no help for it but complete excision and removal of exfoliated portions of the bone.

There is one point: The Doctor wonders, as I understand it, why the chancre itself does not appear in more than one place. The true Hunterian chancre is not multiple; it is single; it is one isolated sore. Any other sores that are surrounding it—and there may be others—are not true chancres; they are chancroids, from the Greek word *oid*, which means “like,” resembling a chancre. They are not true chancres. There is but one true chancre. Whenever you have that single chancre look out for secondary conditions and great trouble.

The antrum in one of these cases that the Doctor reports seems not to have been invaded by the specific virus. There is one remarkable thing about the antrum of Highmore, that is, that it never suffers from syphilis unless it is actually forced upon it by contiguity of tissue. There are cases of syphilis sometimes which come under our observation that are hereditary, brought from parent to child. Of course these are distinguished by the general condition of the patient, as the impoverishment and scrofulitic condition; but one symptom that has been laid down by the authorities must not be too much depended upon, that is what is called Hutchinson's teeth. Those conditions of

the teeth can occur as the sequellæ of the exanthemata like scarlatina, measles and other fevers. So reliance cannot be always placed on those conditions.

Now, as to the means of cure: The treatment in these cases has been right and proper. Dr. Pague saw this case when the bones were necrosed. Instinct would tell us to remove those necrosed bones before we could do anything else. That is not a time for constitutional treatment by mercury. Of course, in the first place when you discover a primary sore, the rule in surgery is to cauterize that sore, burn it out, but not with lunar caustic. Take your cotton on your wooden probe, put it into chemically pure nitric acid and burn that sore entirely out until you get rid of it. As long as that sore is produced the system is tainted; and it is tainted in such a manner that nothing but a course of treatment from one to three years will eradicate it.

The treatment in these cases consists in this: Mercury is the specific for syphilis, and it is the only specific; nothing else will cure syphilis but mercury. You must be careful that your mercury does not do too much harm. You may do more harm with it than good by pushing it violently, and weakening the constitution. In all cases of syphilis you want to preserve the health of your patient as far as possible. By good nourishment keep him strong. You don't want to let him get weak, because there will be weakness enough following the disease. Mercury must not be administered, as I said, too assiduously; that is, salivation must not be produced. It can be administered either internally or by hypodermic injections or by emulsions or by vapor baths. Mercury may be given in conjunction with sarsaparilla. The syrup of sarsaparilla itself has not a particle of virtue; it is not a medicine; it is simply the vehicle by which you get the medicine. When people take sarsaparilla they need not think they are taking medicine. It won't do them any harm or any good unless it is combined with other ingredients. As I said, you can use mercury in those forms. A good way to use mercurial preparations is by the vaporization of the mercury. Take calomel and put it on a plate and put it over a spirit lamp, and set your patient on an open-bottomed chair with a blanket over him,

and have the calomel vaporized with steam underneath. In that way you get it into the whole system; you get the pores of the skin opened. In the secondary stage of the disease when you have this eruption on the forehead, or on the neck, you can see that eruption disappear from day to day. Then keep on with your internal treatment at certain intervals and leave it off at intervals. Persevere in that way and a cure will be effected. It must not be supposed that syphilis is not curable, because it is. If the patient and the physician will work together there is no case of syphilis in its secondary stage but what, I believe, can be cured. It is not the incurable disease we once thought it was. The course of treatment, as I said, in these cases, will run from one to three years. There may be a relapse in that time. The eruption may return, but by renewing your medicine and persevering with it you will eventually accomplish the cure and prevent it from going into those stages where this necrosis occurs.

THE RELATION OF DENTISTRY TO MEDICINE.

BY P. C. REMONDINO, M.D., SAN DIEGO, CAL.

[Read before the Southern California Dental Association, September 2, 1898.]

PHYSIOLOGISTS tell us that prehension and mastication comprise two of the important processes of digestion. Without proper organs for the performance of these the next digestive process, that of insalivation, would be but improperly and imperfectly carried out. Without proper insalivation we beget that nightmare of starchy dyspepsia to which so many moderns are miserable victims. To properly masticate, each tooth must be in its normal condition and the gums and dental processes must be equally sound and capable of resistance. That our teeth and gums, as well as alveolar cavities, are not always as they should be, but are, on the contrary, seats of many and various diseased conditions, and therefore unable always to thoroughly carry out their natural functions, would suggest that dentistry should be a prophylactic or preventive as well as a reparative science, and that in a

preventive-medicine light, its connections with the study and practice of general medicine its relations are much closer than generally detailed.

The student of sociological science understands the influence of climates in shaping the course of sociological events, but it requires an intimate knowledge of the influence of climates and sociological conditions upon the human constitution and the retroactive influence of the resulting induced pathological changes to well understand the mutual bearings that medicine and dentistry find in climate and sociological influences. The subject is really one of the greatest complexity and farther reaching than it would at first appear, and the dental conditions of our people may well lead us into a labyrinth of medical and sociological inquiries from which we can hardly see an ending.

Climates, as believed, enter as large factors into our evil dental conditions, but when we look to the south, among Spanish-Americans, or to the north, among the French-Canadians, and there find a more perfect and better enduring dental development, and again, when we consider that the Canadians of French extraction are the descendants of Brittany and of Normandy, and therefore of practically the same stock as we have received in the United States from England, it would not seem to be after all so much a question of climate or of race as of sociological conditions. Were it climate alone, those Canadians, Mexicans and South Americans who are of pure European descent, should possess, with so many of the inhabitants of the United States equally as bad developed and as quickly decaying teeth; whereas, on the contrary, they are noted for their fine dental development.

While many Americans possess the most perfect teeth, it does not require a very studied comparative observation to determine that the average dental development in the United States is far below that perfection observed among Europeans of the same classes or ages, nor does it require a very extended research to learn that European teeth enter into an unaccustomed process of decay after some years'

residence in the United States, or that the teeth of American children born of Europeans are not as sound as those of their parents. It is this universal or wide-spread imperfect dental development and tendency to premature decay among our people that has made of American dentistry so perfect a science and brought its reparative branch of the art to such a high degree of perfection; this being in accordance with the old adage that necessity is the mother of invention. We should, however, equally develop its preventive medicine or prophylactic possibilities as the same field that furnishes so much material for the exercise of our reparative art is in the same line as fully prolific for the exercise of our preventive science. This whole subject is so closely allied to that of our longevity that whatever sociological processes tend to abbreviate the one will affect the other; whatever tends to affect nutrition, assimilation or elimination injuriously, will as surely affect the development or permanency of the teeth as it will longevity. The sociological and other causes that are the main factors in the development of the conditions so peculiarly American that it was termed American nervousness or neurasthenia by Beard, are, also, by the same operative processes, the factors of so much dental degeneracy and decay among our people. Here medicine and dentistry, must travel, as well as labor, hand in hand if any remedy is to be found and applied.

The study of this subject exhibits an example of how it may appear differently as viewed from different stand-points. Sir Henry Thompson, accustomed to view medicine and diseases more from the point of view of a urinary pathologist and to meet with inadequate or afflicted kidneys in nine out of ten of his medical or surgical cases, naturally came to look upon most bodily ailments as being the result of over-nutrition and of resulting inadequate kidney elimination. Like to Cornaro and the Jesuit Lessius, who contributed earnest works on dietetic continence, or like to Pythagoras the philosopher, Sir Henry came to look upon a meager diet as the unavoidable necessary

accompaniment of those who, having passed middle age, wished to live long on earth and pass their remaining days in comfort, and in the end die an euthanastic death instead of one of the usual uremic diseases. We must not forget that Sir Henry's patrons usually belonged to the well-to-do and to the ultra well-fed in a nation and race that believes and indulges in a most generous diet; neither must we omit that beef, ales and rich wines entered largely and possibly in over-necessary quantities into the diet of his already too-plethoric patients. That Sir Henry should reach the deductions that a meager diet with a sufficiency of pure water were the only sesame to a long and healthy existence was but the natural result of his special observations, considering the nature of diseases with which he mostly came in contact. From these permissible and undeniable premises, Sir Henry went on to argue that it would be well for mankind to harken to the warning voice of nature, which arranged its processes and the activity of its several organs so as to be in keeping. He argued that when the teeth began to decay and from their imperfection incisive prehension and thorough mastication became impossible, that an analogous digestive imperfection must accompany the waning powers of mastication and insalivation—conditions that pointed to a required change of diet; to a diet that would the better meet the changing conditions of teeth and stomach as well as those of the changing conditions occurring to accompany the lessened need of animal food by the ageing frame, and intended to relieve the fast-failing kidneys of overwork in their eliminative functions.

The natural and logical conclusion of the above train of reasoning was that mankind did wrong in supplying itself with any artificial means of mastication, as it thereby furnished the power of partaking and of passing into the stomach a quantity and a quality of food which, not being demanded either by the age or the physiological condition of the individual, could not in the end but react injuriously and bring upon the unheeding mortal such diseases as diabetes and Bright's disease. According to this view of the

case man must resort to the light spoon-food when his teeth begin to fail, because he must accept the verdict voiced by his decaying teeth that his kidneys are no longer in a condition to prolong his days on the old diet, as their eliminative powers are becoming daily more constricted. Man may, according to this view of the case, ornament his emptying jaws with artificial teeth for the cosmetic effect, but not to take the physiological place of the departed ones; nor should he forget at any time that his new teeth are out of touch with the rest of his system—especially his kidneys. An educated dentist, however, one who has studied and observed the many cachectic diseases that vent their spite on the inoffensive teeth, and who has more than once prescribed a more generous and constructive diet or a resort to cod liver oil and other alteratives and tonics to remedy conditions that were either arresting dental growth and development or hastening decay, would hold entirely opposite views from those so urgently insisted upon by Sir Henry. From the dentist's standpoint of view he would be more apt to construe dental caries as he daily observes in his practice, as being rather the result of many and various unhygienic processes, improper dieting, taking food at extreme temperature, of dyspeptic processes, or disregard of dental toilet, and even at times as evidence of insufficient dieting, than as being an effort of nature to warn man that his kidneys are failing. While the dentist, as a physiologist and a pathologist, necessarily admits many of the premises and deductions formulated by Sir Henry, he will, nevertheless, insist that the followers of Sir Henry's ideas admit also the views that he observes from his point of view; and here it is where the dentist and physician come in very close together, as proper medical advice and constitutional treatment must often supplement that mechanical part of dentistry which is employed not only in a reparative sense to restore the teeth to their natural condition, but also to place them in a position or condition to resist the further process of decay.

I have known cases suddenly taken off from their accus-

tomed and necessary diet and placed upon the meager diet supposedly required as a prophylactic or curative in the cases of gout or rheumatism at once begin to suffer from rapidly advancing dental caries, the structure of the teeth in such instances often undergoing such rapid and general alteration as to make their subsequent breakdown or decay a process of alarming rapidity. Cases of pregnancy, inattentive to their diet and unconsciously suffering from some deficiency in some much-needed elements of diet required for the formation of the foetal skeleton, often suffer from a destructive absorption of their own material, the alveolar process being about the first part of their own frame which nature appropriates to supply the needed material for the construction of the offspring. Many a case of subsequent loss of teeth has its origin in this unconscious cause. I have seen mothers in the poorly fed and overworked classes almost toothless from this one cause after three or four pregnancies. The children of these mothers are of necessity prone to rachitis. In that connection we cannot too much condemn the habit of bottle-feeding infants, which is a most prolific source of rachitic diseases and of imperfectly formed or constructed teeth.

While the teeth are everything to diet and the greatest aids to digestion, we should not forget that diet of an improper nature and the often-resulting acid dyspepsia are destructive to their health. Persons with cavities who are careless of their dental toilet should be told of the dangers that lurk from the long-continued imprisonment of food particles—especially if composed of animal food—and the sudden release of these accumulations to invade the intestinal tract. The continued mastication and packing or condensation is such that even in spite of the aseptic action of the saliva a virulent poison may generate within the slight mass of such foods that finds itself impacted in a cavity generating a ptomainic poison as quickly and deadly as any ordinary ice cream or canned-goods poison. I have in the course of my practice seen two fatal cases that I attributed to the ptomaine poisoning resulting from this

cause, whilst at one time I saw a piece of compactly pressed material removed from a large cavity that, when examined on its under surface and broken, was so offensive from decay that it can be safely said that had it found its way down into an individual's stomach fatal poisoning might in spite of the aseptizing secretions of that organ have been the consequence. Persons with carious teeth, or with cavities, or spaces offering lodgment for particles or successive layers of food, cannot be too careful of their dental toilet. Such cavities should be closed with some temporary or cheaper material if the person is unable to afford the permanent or more costly filling, in view of the dangers to which he may otherwise subject himself.

Catlin, the famous traveler and describer of our Indian tribes, attributes the superiority of the perfect dental development and greater lung power of the Indians partly to the fact that the Indian proverbially keeps his mouth shut whether awake or asleep; even when running his lips are closed. In a pithy little work entitled, "Shut Your Mouth," this observer remarks that no after-dinner sleeper who snores through his half-hour's nap with wide-open mouth and sonorous nose as he reclines in his easy library chair can possess sound teeth. The Indian never snores, nor does he draw in large draughts of chilly air through his teeth while engaged in immoderate laughter. His calm repose, whether in delight or in grief and studied stolidity of countenance, are safeguards to his teeth. Catlin is right in stating that the nostrils were given to us for breathing purposes, and the mouth for eating and drinking. We should as a rule keep our mouths shut in sleep, or in walking; neither need we open our mouths like barn-doors to indulge in a boisterous laugh, as we may obtain all the churning aids to digestion by a smothered laugh that will shake us up like a mass of jelly without opening wide our mouth or exposing our teeth.

The above remarks of the traveler Catlin would suggest that after all there must reside some ærial influence in climate that affects the teeth for better or for worse. Just

when our people began to go about with gaping mouths to the detriment of their teeth is not historically known, unless it occurred in that transitional period of rusticity that bridges us over from our former savage state to a high social sphere, as savages and highly bred aristocrats and pugilists keep their mouths shut. With Americans the great prevalence of nasal catarrhal affections is blamable for much of our mouth-breathing, and mouth-breathing is retroactively blamable for much of our catarrh; and, from this view, climate is undoubtedly indirectly responsible for considerable of our dental degeneracy, as the swiftly alternating inspiratory and expiratory movements with their alternating extremes of temperature and hygrometry in the different currents of air, as experienced on a cold winter's day, cannot help but produce some injurious effects upon teeth, especially if the latter lack the proper elements of soundness in their structure. While discussing the effects of various climates upon the teeth it should be suggested that observation shows that in those parts of the world where general body nutrition is best favored there we find the best dental development, and it is just possible that the premature decay of the teeth so often observed among newly arrived Europeans—a decay which, concomitant with lessened rotundity of body and a visible blood deterioration, has for its causes a general disturbance of nutrition incident to a condition of homesickness or nostalgia, rather than to the deteriorating effects of climate. The children of Europeans born in America do not, as a rule, possess as good teeth as those possessed by their parents at the same ages. Why this should be so is unaccountable, unless it be that from childhood they have come under the influence of those deteriorating sociological causes that have made us largely so neurasthenic.

The nature of American climates and their effects on health and longevity have been subjects of inquiries and investigations for the last five centuries. It was at first believed that each climate produced its race, and that, according to the rule, all the Europeans coming to America, after

some generations, would become like the original Indians. There is no doubt but that the general conditions that go to make up climates, greatly influence the growth of the frame and the development of the physical and psychic nature of man; different parts of the American continent, as observed among our Indians, give us different physical and mental development, and Europeans coming under the climatic influences of these various localities will, in a modified degree, either grow large or stunted, just as the human beings have who have preceded them. Our people are so migratory, and so few generations have as yet remained long in any locality, that we cannot at present determine just what the American race will be, although some observers maintain that sufficient has been noticed to warrant the belief that, while there is no fear of Americans ever becoming copper-hued, there are no doubts that in physique, general development and stature they will partake largely of the frame and build of the tall and broad-shouldered Indians that once dwelt on the shores of the great lakes and in the valleys of the great rivers, and, with proper observance of hygiene possess as strong and sound teeth. American climates have not only been kindly, but they have been more than generous to the average North American Indian who has preceded us, and there are no reasons why the acclimated European should not in the end come to fare as well.

It is our sociological conditions that need pruning and cultivating, and to do this we should be more matter-of-fact and less sensational. We are too apt to mistake aimless speed for progress, and a riotous unrest as contentment, as well as unmistakable insanity for religious zeal; all of which is as deleterious to our teeth as it is to our general health and chances of longevity. As has been suggested, the laity do not sufficiently understand the relations that exist between the conditions of our teeth and our general health, nor the influence of the latter upon the former; neither can they appreciate that teeth will under certain bodily conditions run into decay and ruin much faster than under better

conditions. The laity cannot understand that interdependence that exists between various parts of the body, or how some diseases will affect the whole, while other diseases affect only locally. They cannot understand why a number of gripe attacks should lower their mental faculties as well as their general bodily resistance, or why their teeth should, after a few such severe gripe attacks, be more prone to decay; and yet observers will tell you that a general mental and physical decay has followed many a severe attack of the gripe, while observing physicians have noticed the hastening decay of the teeth in many such cases, just as if age had, in one short year leaped over the space generally taken by one or two decades. To fully appreciate these possibilities and understand their full import, one need but labor through an epidemic of scurvy. Such an experience will better than anything else furnish the most conclusive evidence that the teeth are the first to suffer, where in many forms of disease, the general nutrition of the body is so suddenly and seriously interfered with, and how quickly some forms of deteriorated blood conditions will cause the loss of our teeth.

In the present light of medical and dental science I am surprised that general governments are not more guided by greater intelligence. Cyrus was early taught that, while surgeons to heal wounds and medical men to treat the sick are well enough in their place, it was the duty of a ruler to study hygiene and preventive medicine so as to avoid sickness. Governments furnish medicines and physicians to their troops, but any makeshift is accepted for a cook, and no one looks out for the health and perfection of the teeth. In the old paper-cartridge days good teeth were essential in the recruit to bite off the end of the cartridge, and when the soldier lost these teeth through decay or accident he was discharged as useless in battle and a new recruit with sound teeth took his place. Governments took no intelligent view of the subject and it never occurred to them that an intelligent dentist might have altered all of this waste of material of war. In the drafts of 1863 and 1864, during the Civil War, many physicians found ample employment in rendering men unfit

for army service by drawing all their cartridge-biting teeth. While metal cartridges have done away with all this, it still remains a fact that for his general health the soldier should possess a full set of sound and serviceable teeth—teeth that will enable him to properly masticate his food, and sound enough not to subject him to neuralgia or to abscesses in his jaws upon exposure. The services of a dentist should be at the soldier's disposal. While our small detached posts would hardly require a dentist, one should, nevertheless, visit such posts with regularity, and critically examine each man and perform all the necessary dental repairs. I should advise your national association to urge this need of the army and navy upon Congress, and, in the interests of the soldiers and sailors, attempt to remedy the evils resulting from this want.

Congress should in a like manner remedy a like want in the methods of preparing the soldier's food. In the Crimean war the English army suffered severely through this neglect, and many a soldier's breakdown and repose in a Russian grave was directly traceable to the English lack of knowledge in preparing food. While the English army was physically the superior in *personnel* of either the French or the Sardinian army, and in other respects the peer of any army in intelligence, its losses directly attributable to a lack of intelligent cooking were greatly in excess of those of its allies.

Cooking is an art, not necessarily, as many erroneously imagine, a glutton's or gourmand's art, but an art preservative and reparative, and one that is in close touch with that of preventive medicine.

Our army and navy boards carefully tabulate the nutritious elements that a soldier or sailor will require and furnish a dietary in accordance; but its preparation, upon which its efficiency and that of the men depend, is left entirely to chance and to the random detail of the inexperienced. This is not as it should be. Army cooks should be a branch of the service as properly educated as the gunners. Napoleon lost Leipsic and Waterloo through indigestion, and the private soldier or sailor are as physically mortal. Bad and unintelligent cooking breed indifferent

habits and ruin the teeth as well as the soldier and sailor.

Soldiers and sailors require that their bodies should be in the highest state of perfection. This requires sound teeth. A man with decayed teeth and worried by intervals of unrest or pain by imperfect digestion, cannot hope to pull through an attack of fever as well as the one in better health. Pugilistic trainers never allow the pupil a diet productive of flatulence or any article not thoroughly digestible, as they know full well the evil effects of either stomach or intestinal indigestion upon the alertness, action and elasticity, both mental and physical, of the pupil. Just why our otherwise progressive government has neglected these important elements of hygiene is unaccountable. Your national association can do the army and navy as well as the nation a much-needed service by urging such a reform.

A CASE IN PRACTICE.

BY FRANK L. PLATT, D.D.S., SAN FRANCISCO, CAL.

THE following description of an experience with an impacted third molar may prove interesting to some readers of the GAZETTE.

Miss G. came to my office presenting a case with a history as follows: Five or six years ago the lower right second bicuspid and first and second molars were extracted, and a few months later a slight discharge of pus was noticed on pressure in the region formerly occupied by the second molar. This had continued at intervals, with but little attendant pain until case was presented for treatment. At my invitation the patient accompanied me to the rooms of the Stomatological Club, where an examination was made and a small piece of necrosed bone removed from the jaw. It being the opinion of those present that this might have been the sole cause of the trouble, no further examination was made. The wound was packed with gauze, and the patient directed to call at my office the following day, at which time the dressing was removed and no further cause found for the discharge of pus. Ten days later

the patient again came to my office reporting a greater discharge of pus than usual. With a long-curved lance I opened the gum clear back to the angle of the jaw, and reaching down through gum and muscular tissue as far back as possible detected a portion of a third molar projecting through the bone. The tissues were then cut free from the bone until fully three-quarters of an inch of the masseteric line was exposed, when the mesio-lingual cusp of the tooth was exposed, the balance of it being buried deep in the bone and pointing outward and backward. The engine was at once brought into use with large fissure burs; but after two hours hard work it was impossible to dislodge the tooth with either forceps or elevator. The patient being somewhat exhausted (no anesthetic but cocaine having been used) the case was dismissed until the next day, when, after an hour's work, sufficient bone was removed to allow the removal of the tooth with a pair of long-beaked lower-root forceps. The amount of time consumed seems very great, but it must be remembered that the dental engine with dental burs does not cut bone very rapidly, and the bone in this case was unusually dense and hard. The treatment has been daily washing with hot borolyptol (25-per-cent. solution) and packing with iodoform gauze, or with aristol. There has been but little pain and the wound is healing nicely.

GOLD VENEERS.

BY DR. O. B. BURNS, SAN FRANCISCO, CAL.

[A paper presented before the California State Dental Association, June 23, 1897.]

I DO not claim to be the originator of this system, but I claim an improvement on an old method. In the second volume of the "American System of Dentistry," at page 949, it will be found that Dr. Bing, of Paris, introduced in the '70s what was then called a "metallic facing," which was made of pure gold plate, the under portion having soldered to it platinum wire loops, the same being pressed while warm into and upon a gutta-percha stopping placed in the cavity of the tooth.

Prof. Charles Essig improved this system by filling the cavity with wax and contouring it to its proper shape, then he took an impression and made a die and counter-die, swaged the gold, soldered the platinum loops underneath and set it over the rubber the same as Dr. Bing. In making a gold veneer I prepare the cavity the same for a filling and fit pure gold plate (28-gauge) so that it laps over the tooth beyond the cavity about a sixteenth of an inch. If the veneer is to be a small one, it can be easily shaped by a burnisher of a suitable size, not forgetting to anneal the gold frequently while burnishing it into shape. In larger cavities one can make a die and counter-die, and swage the gold veneer so as to get the proper contour, being careful always to see that the occlusion is perfect. When the veneer has been burnished into its proper shape, turn it over and on the inside surface will be seen a faint line all around it close to the edge. This mark on the gold will give an outline of the outer wall of the cavity itself. If you cannot see the mark in some places, use the eye and put the line where you think it should be. Now take a strip of gold (32 or 33-gauge) about one-sixteenth of an inch wide, and stand it on its edge on the under portion of the veneer, following a little inside of the line, forming a rim which will just fit inside the outer walls of the cavity. Solder this rim with 20 or 22-k. solder, then try it once more over the cavity, making sure that the fit and occlusion are perfect. Remove the veneer and bevel the outer edges of the cavity with a burr, stone or paper disk. Apply the rubber-dam and dry out the cavity thoroughly. Take a fine file and bevel the edges of the veneer slightly; try it in once more, and with a burnisher make the outer edges of the gold fit close over the enamel of the tooth. Mix the cement rather soft, the same as for crown- and bridge-work. Place it in the cavity, making sure of a surplus. Then press the veneer into position, holding it there with an instrument in the left hand, and at the same time burnishing the gold into place with a burnisher in the right hand. Make sure that you press the outer edge of the gold close to the enamel of the tooth, leaving no space between them. If making an approximal veneer, cut a wedge of wood and force that between the

veneer and the adjoining tooth, making the gold hug the tooth at the cervical edge. Work a flat burnisher or spatula between the wedge and the veneer of the tooth, twisting and giving it a side motion at the same time, and by so doing it will be possible to force the gold close to the sides of the tooth near the gum margin. Burnish the rest of the veneer into place with a burnisher, then with the electric mallet and a suitable plugger-point force the gold still closer to the enamel edges of the tooth, making a perfect joint and also stiffening the gold at the same time. I always place a piece of chamois skin between the plugger-point and the veneer, so that I do not leave any scratches. I generally use foot and ball-shaped pluggers for this portion of the work. The electric mallet I run with a four-cell storage battery, which gives plenty of power to force the gold wherever I want it to go. The finishing is done mostly with sand paper and cuttlefish disks, and afterwards polished with fine pumice, chalk, etc. The burnishers must have large handles so that you can hold and have perfect control of them while using. It is also essential that a good slow-setting cement be used. I use the Harvard cement, and find that it answers the purpose very well.

ADDRESS OF WELCOME.

BY DR. EMMA T. READ, SAN DIEGO, CAL.

[Presented at the First Annual Meeting of the Southern California State Dental Association, September 2, 1898.]

MR. PRESIDENT, LADIES AND GENTLEMEN:—On behalf of the members of our profession and of the citizens of San Diego I extend to you, who are engaged in the highest and most progressive of professions, a hearty welcome.

I scarcely need say how glad we are to have you come, and that we shall be sorry to have you go; though we may not greet you as did our San Francisco friends, "with open mouths." We may be slow and we may be sleepy; we certainly are a little lower than the Angels; we may be somewhat lacking in stately architecture, and in shrubs and trees of luxuriant and majestic growth; we may be lacking

in much that makes a cosmopolitan city, but when it comes to fine quality of people San Diego stands to the front.

We want every hour of your stay with us to be spent pleasantly and profitably. We look forward to your taking part in our discussions and clinics, and aiding us by interchange of thought, and, when our session is closed, remain with us for a time to go out into Sweetwater and El Cajon and enjoy the orchards and vineyards; go to Chula Vista, La Jolla and Ocean Beach; go to Coronado and enjoy the driving, wheeling, hunting, bathing (pardon the suggestion), rowing, sailing; take the steam launch "Evangel," the most handsomely fitted launch on the bay, and enjoy a moonlight ride, and you will return to your homes ready for the office and its demands.

We meet this year in exceptional circumstances. Twenty-eight years ago the California State Dental Association met for the first time. During these years much has happened of the greatest interest to our profession, and if I attempted to review, even briefly, the progress made in these years I could not hope to do it to any purpose in the short time given me.

We have reached another stage in our professional progress which has made the union of the Southern California Odontological Society and the Alumni Association a necessity, the outcome of which is the Southern California Dental Association, and we trust that this its first annual meeting will be not only a source of pleasure but a means of inspiration, for we meet not alone for ourselves, but in the interest of humanity. At this time we have need of energy, courage, faith in ourselves, and in our mission, to keep pace with the rapid and accurate strides being made by science and art; and true progress can only be made by constant study and steady, persistent effort. We have reason to be proud of our beloved profession. It is only 110 years since Dr. John Greenwood, the first American dentist, opened his office in New York, and since that time America has supplied the leading practitioners of the world, and Dr. Teague states that "California has within the past thirty years added more to the field of dental

practice than any other State in the Union, and more than any other country in the world."

Let us be honest, earnest, inquiring, and so far as is possible ready to contribute from experience and investigation to the solutions of the problems which confront us today, and which tomorrow will give place to others.

Believing that this meeting will develop thought, lessen jealousies, clear away misunderstandings, awaken interest in one another, form friendships, and unite us in the desire to reach the highest standard, I welcome you to the first annual meeting of the Southern California Dental Association.

Selections.

LEUCOPLAKIA.

BY DR. JOHN S. MARSHALL, CHICAGO, ILL.

[Abstract of paper read before the New York State Dental Society, May 12, 1898.]

LEUCOPLAKIA is a term derived from the Greek—*leukos*, white, and *plax*, surface,—literally white surface or whitening of the surface.

Definition.—Leucoplakia is a chronic superficial inflammation of the mucous membrane of the tongue, the cheeks, the palate, and the gums, and is characterized by the presence of pearly-white or bluish-white plaques or patches; in some cases small, in others covering the entire dorsum of the tongue, the cheeks, from the angle of the mouth back to the fauces, the palate, or the entire buccal surface of the gums. Various terms, such as *leucoplakia lingua*, *leucoplakia buccalis*, and *leucoplakia gingiva*, have been introduced to designate the location of the disease.

Nomenclature.—The disease is variously known as *psoriasis lingue*, *zona* (*herpes zoster*), *smoker's patch*, *leucoma*, *leucoplakia*, *ichthyosis*, *leucokeratosis*, *leucoplasia*, *leucoplaques*, *plaques opalines*, and *superficial glossitis*.

Varieties.—There are two forms of leucoplaques found in the human mouth, the milky opaline patches (*plaques opalines*), represented by the mucous patches or *condylomata* of secondary syphilis, and the non-syphilitic, smooth white or

pearly-white patches, for which Schwimmer was the first to propose the term *leucoplakia* and Hutchinson *leucoma*.

The French writers generally refer to the disease as *psoriasis lingua*, or *plaques opalines*.

Hulke described a warty variety of the disease and applied to it the term *ichthyosis lingua*.

The plaques opalines, or the mucous patches of secondary syphilis, are grayish-white and curdy in appearance, resembling the superficial corrosions caused by the application of the nitrate of silver to the mucous membrane; while the plaques of leucoplakia are usually thin, shiny, bluish-white, white or pearly in color, sometimes having a yellowish tinge; but this, according to Butlin, is almost always due to the stain of tobacco or some other extraneous substance.

These two varieties of leucoplaques may be further differentiated by the slight elevation of the syphilitic mucous patches, the secretion of a thin watery fluid, which is the potent source of contagion, and their tendency to become painful and to ulceration, while in leucoplakia the patches are not elevated above the surrounding tissue, except in the warty form (*ichthyosis*); they are not painful except in the advanced stage of the disease; no secretion is present, and ulceration is not developed until the disease has taken on a malignant form.

To the latter variety of leucoplaques, the true leucoma or leucoplakia, the essayist desires at this time to call your especial attention for the following reasons:

First. It is an exceedingly dangerous affection, often being the forerunner of carcinoma.

Second. It is a disease which, from its innocent appearance and the painless character of its early stages, is seldom recognized until the disease has progressed to a stage which renders a favorable prognosis exceedingly doubtful.

Third. That the disease seems, from personal observation, to be on the increase; and,

Fourth. The dentist, from the very nature of his specialty, is in a position to see and recognize the disease in its very earliest stages, and to warn the patient of his condition before it has progressed so far as to prove a menace to his life.

The disease in its earlier stages is much more likely to come under the notice of the observing dentist or stomatologist than it is of the surgeon or the laryngologist. As a rule, the patient does not consult a surgeon until the disease becomes troublesome; it may then have progressed so far as to give unmistakable evidence of degenerative changes of a malignant character. The dentist, therefore, should be so familiar with the characteristic features of the disease that he could recognize it at a glance; while it would be his duty to impress upon the patient the urgent necessity of consulting an oral specialist with a view of instituting measures calculated to arrest its further development, or for its complete extirpation.

Etiology.—The etiology of leucoplakia is by no means a settled question in oral pathology. Marked differences of opinion still exist among the very best pathologists as to the causative factors in the production of the affection.

The earlier writers looked upon the disease as a local manifestation of psoriasis; others that it was due to certain other forms of skin-disease, like zona (herpes zoster), and lichen planus; many have looked upon the disease as a circumscribed chronic inflammation of the oral mucous membrane, due to syphilis; and still others that it is a distinct affection produced by the local irritation induced by smoking or chewing tobacco.

Most modern writers look upon leucoplakia as a distinct affection, having no association with psoriasis in any of its forms.

Predisposing Causes.—Butlin agrees with Debove in the statement that there is in most patients some condition which predisposes to the disease. He says: "I suspect that the mucous membrane of the tongue in leucomatus subjects is from the first less thick and stable and more easily irritated than in the majority of persons. As some persons are known to have irritable and delicate skins, easily inflamed and prone to eruptions, and as some of these persons develop affections of the skin which are very chronic and difficult to heal, so I believe other persons have tongues whose mucous membrane is abnormally

delicate, prone to chronic inflammation and difficult to cure when the disease has been excited."

It has been suggested that chronic dyspepsia and the rheumatic and gouty diathesis might be a predisposing cause of the disease, but the evidence upon this point does not seem to be sufficiently strong to give any real weight to its consideration.

Sajous, however, says he has reason to think that gout is a cause of leucoplakia, for he has seen it in gouty women, who did not smoke and were not syphilitic.

Age and sex are both very important predisposing causes of the disease. Leucoplakia has been rarely seen in persons under twenty years of age, even in boys addicted to smoking; while upon the other hand it is rarely seen to commence in persons over sixty years of age. Women seem to be almost entirely exempt from the disease. Of the eight cases seen by the essayist all were in men and occurred between the ages of forty and seventy-four.

Du Castel has reported a case in which the disease had existed since the age of twelve years in a man who had never used tobacco.

Exciting Causes.—Among the most common exciting causes of leucoplakia may be mentioned the irritation produced by the habitual use of tobacco, particularly smoking; the later recurring lesions of the mucous membrane due to the secondary manifestations of syphilis,—the mucous plaques,—acting locally upon the tongue or the buccal mucous membrane; the frequent use of undiluted spirituous liquors, the drinking of very hot fluids, or eating of very hot or highly spiced foods; the mechanical irritation of teeth roughened by the process of caries, fractures, or the accumulation of salivary calculus; the irritation from dental plates which are rough, ill-fitting, or made of material which is irritating to the delicate mucous membrane of the mouth.

Wallenberg is of the opinion that the use of tobacco is the most frequent cause of leucoplakia, and believes the disease is produced by the irritation of the volatile and empyreumatic oils liberated in smoking it. The essayist has no hesitation in expressing it as his opinion that the

use of the pipe is much more dangerous to a sensitive mouth on this account than the smoking of cigars or cigarettes, as the pipe, from long use, is generally saturated with these oils, which often come into direct contact with the mucous membrane of the tongue, causing smarting and burning sensations, with more or less irritation. In the habitual smoker the irritation becomes chronic, producing a thickening of the epidermal layer and infiltration of the papillary layer with round cells.

Symptoms and Diagnosis.—Leucoplakia may be recognized by the presence of circumscribed or diffuse, smooth white, bluish-white, or pearly-white, radiating patches appearing in various numbers upon the mucous membrane of the cheeks, lips, gums, palate or the tongue. These patches often coalesce to form larger ones. In their earliest stage they are not elevated above the surrounding membrane, are smooth and glistening in appearance, and range in size from tiny, irregularly outlined spots to large plaques the size of a silver half-dollar, or even larger. At first they are not sensitive, and on this account may exist for a long time without the knowledge of the patient. Many cases never progress beyond this stage. Others may slowly increase in size, thickness and intensity of color, the plaque being slightly raised, the surface hard,—*cornified*,—and roughened. Accompanying this stage, especially when the disease is located upon the dorsum of the tongue, the patient will complain of a persistent dryness of the parts and inability to speak or use the tongue with comfort, except by frequent moistening of the mouth.

Later fissures appear in the tongue and there is developed a smarting, burning sensation, as though the parts had been scalded. Alcoholic liquors, fermented beverages, acid fruits, highly seasoned or very hot foods or drinks, and chewing and smoking tobacco increase these sensations, and sometimes render the partaking of food a very great discomfort. Associated with this condition there is a tendency of some portion of the plaque to peel off or slough out, from time to time, leaving a reddened or a raw surface which is exceedingly sensitive and sometimes quite

painful. Ulceration may follow and degenerative changes develop, ending in the formation of a carcinoma.

When the disease is in the tongue warty growths sometimes appear in the leucomatous patches, which show a marked tendency under the stimulation of an irritant to take on a rapid form of carcinomatous degeneration.

Authorities are not agreed, however, as to the earliest developments of the leucomatous patch. Schwimmer and Barker describe the earliest stage of the disease as appearing in the form of dark red or reddish patches, which later are covered with the white or pearly-white surface. Butlin, Debove, Nedopil, and nearly all other writers upon the subject describe the first stage as appearing in the form of radiating, non-sensitive white or pearly-white plaques; and your essayist desires to state that the testimony of his own observation corresponds with the latter conclusion.

Another fact should also be borne in mind in diagnosing this affection, namely: The progress of the disease is in many instances very slow, and may have the appearance of having reached the limits of its development, while occasionally the disease may disappear with advancing age. On the other hand, the disease which has seemed for many years to remain in about the same condition may suddenly assume a most rapid and malignant type of degeneration.

Shield reported a case of leucoplakia linguæ in a man seventy-three years old, for whom, two years before, one-half of the tongue had been removed for undoubted carcinoma, who gave a previous history of the presence of the disease,—“bad tongue,”—for more than twenty years.

Differential Diagnosis.—The affections which may be confounded with leucoplakia buccalis are the mucco-plaques of syphilis and epithelioma. In the earlier stages of the disease such a mistake could hardly be made, but in the later period of the affection it might quite easily be confounded with syphilis or epithelioma. A three or four weeks' course of treatment with the iodide of mercury or potassium would clear up the diagnosis of the former, while in the latter it would be necessary to resort to the aid of the microscope for a positive diagnosis, even though there was present the clinical evidence of enlarged lymphatic glands.

Prognosis.—The interest in the prognosis of leucoplakia centers around the tendency or the predisposition of the disease to be followed by malignant degenerative changes, ending in the formation of carcinoma. That such a predisposition exists there is not a shadow of a doubt.

Treatment.—Leucoplakia of the oral mucous membrane is generally exceedingly rebellious to treatment, and quite often shows a marked tendency to carcinomatous degeneration; therefore the measures employed are *per force* largely those of palliation and heroic operations.

Those cases, however, which give a clear history of syphilitic infection may be benefited by a course of anti-syphilitic treatment, but it may be stated as a fact that up to the present time no drug has been discovered which, acting constitutionally, has any beneficial effect whatever upon the progress of the disease.

The *preventive measures* which may be instituted in the treatment of leucoplakia are the removal or discontinuance of all forms of chemical and mechanical irritation. Persons who suffer from an irritable and sensitive oral mucous membrane should avoid *chemical irritants* of whatever nature, particularly alcohol in any of its forms, acids, pungent condiments, very hot foods or drinks and tobacco. In persons already affected with the disease such irritants stimulate its progress and should therefore be strictly interdicted. It is much easier, however, to advise a patient as to what he should do and what he should not do than it is to get him to follow your advice.

In the early stages of the disease—before it has caused any real inconvenience—it is very difficult to get a man who is in the habit of using spirituous liquors or tobacco to consent to give them up. He feels that you may be mistaken, or that you are magnifying the danger, and hence decides not to change his habit of living, at any rate not for the present, or until he is convinced that your advice is correct. Perhaps he will consult some other professional gentleman, who disagrees with your diagnosis and laughs at your fears. This reassures the patient, and he goes on with his old habit of life for months, perhaps years; in

some cases with impunity, in others with most disastrous effects to his comfort and his life.

The *mechanical irritants* which are most common in the mouth are usually associated with the teeth or with artificial dentures, such as carious cavities, jagged roots, fractured teeth, salivary calculus, rough or ill-fitting plates, or plates made of materials which are irritating to a sensitive mucous membrane. All such forms of irritation should be at once removed by filling the cavities, extracting the roots, giving appropriate treatment to the fractured teeth, removing the salivary calculus, and carefully polishing the surface of the teeth; while the irritating artificial dentures should be replaced by others free from these objections or discarded altogether. Too much stress cannot be laid upon these points as a safeguard to the patient against the development of the malignant form of the disease.

Local Treatment.—Nicholson, who believes leucoplakia to be zona of the oral mucous membrane, considers local applications of only temporary service, while the constitutional treatment for zona is often entirely fruitless. He advises, however, a trial of the tincture ferri perchloride twenty-five to thirty minutes (1.3 to 2 grams) three times per diem, as in one of his cases it seemed to give relief from the burning pain, and improved the condition of the lingual epithelium in a remarkable manner, when all else had failed.

Rosenberger recommends the local application of pure balsam of Peru, painted upon the patches with a brush, and allowing it to remain in contact for from three to five minutes. The immediate effect is a slight burning sensation with an abundant salivation. These applications he advises to be made three times per diem. In thirteen cases so treated, great relief was obtained. The patches, however, heal slowly, a year in some cases being required to produce a cure.

Leistikow advises the local application of the following paste:

Tenæ siliceæ,	1.5	grams	(24	grains);
Resorcini,	3.0	"	(48	");
Adipis,	0.5	"	(8	").

This he applies to the affected parts with a swab. From

eight to fourteen days afterward a contraction or shriveling is observed, and a slightly inflamed condition of the mucous membrane, which by the application of balsam of Peru is brought to a normal condition.

Rosenberger reports a case of leucoplakia which had lasted for over seven years, and had resisted all the usual methods of treatment, in which the plaques disappeared in a few days after being painted with a twenty per cent. solution of the iodide of potassium.

In a case treated by the essayist the local application to the plaques and the denuded surface of the tongue of tincture of aconite and tincture of iodine, equal parts, every other day for two months, relieved all the symptoms except the abnormal dryness of the tongue, while the denuded part healed and was covered with healthy appearing papillæ. In the other four cases treatment was declined because of the apparent trivial nature of the disease to the minds of the patients.

Palliative Treatment.—Consists of the use of alkaline lotions or mouth-washes. Butlin recommends for this purpose, in the milder cases, bicarbonate of potassium, fifteen to twenty grains to one ounce of water, and in the syphilitic cases chromic acid, one to two grains to the ounce of water; or a five to ten-grain solution may be painted upon the plaques. Bicyanide of mercury is also recommended in solution of one to two grains to an ounce of water, and painted upon the plaques.

In the severer cases he recommends solutions of the bicarbonate of soda or of boric acid. He thinks melboracis (honey and borax) is better suited to some cases than alkaline solutions, but as a general rule, the alkaline solutions give greater relief in cases of leucoplakia of long standing. A trial of these various remedies is necessary in order to find the one best suited to the individual case.

Surgical Treatment.—In the severer forms of the disease radical operation is the only safe method to follow. The tendency of the disease to assume a malignant character should cause it to be treated as a malignant growth, and thorough extirpation practiced at the earliest moment.

Temporizing by the use of caustics is worse than useless,

and most authors deprecate their use for the reason that the irritation seems to increase the dangers from malignant degeneration.

In closing this somewhat lengthy paper, your essayist trusts that the presentation of such a subject has not seemed to you out of place, but rather in its right place; and that the suggestions herein made will have so interested you that in the future you will carefully observe the mouths of your patients with the view of studying this disease and reporting your discoveries. The disease is no doubt on the increase, if your essayist may judge from his own experience, for up to one year ago he had seen but three cases in all his practice. Since this period he has recorded five additional cases.—[Dental Cosmos.

ONLY A BABY TOOTH.

BY DR. W. H. HALL, DENVER, COOL.

[Abstract of paper read before the American Medical Association—Section of Stomatology at Denver, July 30, 1898.]

REFERENCE is not here made to any particular baby tooth, nor to any particular baby's tooth, but to the deciduous or temporary teeth as a class.

Interest in the subject which furnishes the topic of this practical treatise antedates considerably the discovery of the *first* baby's *first* tooth by the proud new parents.

Its importance does not begin nor end here, nor is it confined within the limits of baby's and childhood's tender years, as we expect to prove. An extended theoretical discussion of the proper treatment and best material for filling roots and crown of a devitalized molar would come as far short of interesting our medical brethren as would a learned paper on typhoid fever and its treatment the dental section of this assembly. Therefore, this homely topic shall be given to a plain, practical, but limited consideration. "Only a baby tooth" is expressive of insignificance, but not in that sense do we use it here, now, nor elsewhere never. It is sometimes given professional utterance in just that sentiment, however, but no one in this body of our profession's representatives was ever guilty. The culprit

lives and practices over in the next county, and never attends a meeting of the city, county, State or national medical or dental society. He stays at home hoping to capture patients, while the "up-to-date" brother attends the convention feasts. He has no need of the society, and *vice versa*. Did you ever hear of his saying "Oh, it's only a baby tooth. We'll pull it out and some day a new one will grow in and take its place"? Why not say "Only a kid, and it is not important what kind of treatment is given"? In my imagination I can almost see the dim outlines of a gallows rising to receive such criminals in practice. Perhaps if outraged nature fails to fill the vacancy this culprit has made he can supply the loss with a lovely, glistening gold tooth, for nowadays, you know, you can get a gold tooth, whether or not you stick your tongue in the vacancy—and for five dollars, too—but then Dr. P. says they are brass, gold-plated.

I would not wish to convey the idea that I think temporary teeth should never be extracted. Not extraction but premature extraction is the criminal act. I rather enjoyed the enviable reputation gained in my practice in Ohio, of "never extracting children's teeth." This, however, was the frequent parental decision, but in practice was not adhered to when judgment dictated otherwise.

It always takes more time to explain to parent or accompanying guardian why an aching tooth should not be at once removed than to perform a dozen such surgical operations, with the apparent result, after all, that the effort was "love's labor lost." The impression which prevails to a great extent among parents (it certainly does not exist in the professional ranks) that the temporary teeth have no roots and should be extracted when they ache, because a new one will come in after awhile, anyhow, is an error which should be corrected as speedily as possible. The mission of the physician and dentist is not of a remedial character alone, but prophylactic and educational also. The value of the temporary organ and its important office during that comparatively short period—the few years of child life—should be an oft-repeated lesson, until parents are impressed with their responsibility, and that the period of

first dentition, the care and attention necessary for their preservation until nature's physiological process accomplishes their removal is one of great importance.

A neglected, abused or maltreated first dentition often causes a sad disfigurement of the permanent set. A premature removal of the temporary teeth is a more frequent cause of irregularity in the permanent set than a tardy removal. This is a valuable lesson the dental profession is teaching, and we are persuaded that it is not altogether in vain. Because a temporary tooth aches it must not be concluded that extraction is the only treatment, nor simply because it's "only a baby tooth" that it's not worth while to give it any other consideration. True, it is much easier for the operator to extract it than to give it treatment, and parents think only of such prompt and heroic measures as will end the ache at once and forever. (How sad that prevention was not thought of months, yes, even years before.) The family physician is often sought in such cases, and yields to the desire for extraction, thereby doing violence perhaps to his conscience and better judgment.

The conscientious dentist (and physician) will not only protest against premature extraction, but will follow his protest with a kind and intelligent explanation of the proper treatment, with good reasons therefor, and then, if necessary, positively decline to be a party to the "slaughter of innocents."

The preservation of the temporary teeth is important for several reasons.

First. They are needed for masticating purposes, and must be kept in good condition for the proper performance of that function. If badly decayed, mastication cannot be properly performed, indigestion and dyspepsia result, with consequent general systemic disorder.

Second. They contaminate the breath, and this fetor enters the lungs; the vitiated saliva mixed with the food passes into the stomach; such conditions we contemplate with disgust and horror.

Third. Decay involves the pulps, causing pain and suffering to the child, with more or less general nervous disturbance; finally death of the pulp, resulting sooner or later in

suppuration, adding another objectionable element to the contents of the stomach. The death of the pulp portends further trouble in the future because the physiological process of resorption of the root ceases, and these roots minus crowns, sometimes remain for several years, deflecting the permanent teeth from their course, or crowding them from their position in the arch.

Fourth. The temporary teeth retain the fullness of the alveolar process and maxillary development.

Fifth. They are needed as wedges to support and retain in its own place each contiguous tooth until the approach of the teeth of replacement.

The evils of premature extraction of the temporary teeth are,—

First. Possible irregularity of the permanent teeth.

Second. Absorption of the alveolar process and consequent contracted condition of the maxilla by reason of arrested development, thus permitting the contiguous teeth to move toward one another, closing the space, resulting in disalignment, impaction, or prevention of eruption of the permanent tooth. Especially important is the second or posterior temporary molar in retaining the first permanent molar in its place, and also the temporary cuspids in retaining the temporary bicuspid in their places. The premature loss of the temporary cuspid is perhaps the more frequent cause of disfigurement and a more serious irregularity than any other with which the dentist has any experience.

Finally, premature extraction may cause the destruction of the germ of the permanent tooth. For example, the pulps of the *first* and *second* bicuspid are formed about the *fifth* or *sixth* years, so a removal of the anterior or posterior molars at this period may result in the serious injury of the permanent tooth.

What, then, shall be done for the children and their deciduous teeth?

No single, definite plan, of course, can be pursued and attain the object sought—viz., the preservation of these teeth until the proper time for their removal by nature's process, and with the assistance of dental science.

Several things are essential—viz., to assist weak nature

if her resources are impoverished, restrain her if she seems violent, and correct her if her course be erratic. Hygienic science is well recognized as an essential factor in the health of the body, and dental hygiene is the key which will unlock the door to the temple of health—science for the benefit of the baby's "first teeth."

Without that aid, the man of dental science is waging a stubborn and endless battle in the effort to preserve what might have been prevented. It is not only by good guessing that our profession has arrived at an understanding of these things, but by the sure findings of scientific investigation. Our thought is not so much of hygienic influences and the benefit to these dental organs after their "line up" in the mouth, but of the importance and value of such treatment during the periods of gestation and lactation and later periods of development.

It is not our purpose to consider in detail that strange and interesting operation in the human economy, the process of the development of the teeth, but when we know that the evidence of a germ, which eventually becomes a tooth, has been observed as early as the sixth week of embryonic life, with a knowledge also of the various stages and changes during the periods of development, we may reasonably expect that the influence of hygienic treatment during those periods will be manifested in a better quality of tooth structure. The papilæ or dental germs of the temporary teeth appear, as reported by various authorities, about as follows: The anterior molars, sixth to seventh week of embryonic life, followed by the cuspids, incisors and posterior molars up to the tenth week.

The eruption of these teeth occurs as follows: Beginning with the incisors at about seven months of age, continuing with the entire set until the twenty-fourth month, when the posterior molars appear.

Therefore from the sixth week of embryonic life when the dental germ is first discovered, until past two years of age when the last temporary molar is in its place, embraces a period of about three years, during which time the temporary teeth are undergoing the developing and calcifying and dentinifying process. Any diseased condition of the sys-

tem which disturbs nutrition affecting or preventing the assimilation and appropriation of the lime-salts, those elements which build the osseous system, will produce manifest defects in those tissues. As we nourish the body so we can nourish the teeth. Therefore let parents, physicians and dentists take more interest in this subject and study for the preservation of the temporary teeth by a hygienic regime, which tends toward the prevention of a low grade of tooth structure.

Here the physician's opportunity exceeds that of the dentist, but when the time and opportunity for the practice of these principles have passed, so far as the benefit to the temporary teeth is concerned, then as cavities of decay appear they should be filled. The selection of the kind of material for filling is governed by circumstances, but oxyphosphate of zinc or tin are generally preferred.

In conclusion, we hope that an appreciative public will more and more come to understand that not every practitioner of dental science and art is living simply to "pull" and "plug" teeth; and further, that members of our profession will feel that dental instruction and education should not be entirely confined within the walls of our professional schools.—[Dental Cosmos.

Correspondence.

WARTS.

EDITOR PACIFIC MEDICO-DENTAL GAZETTE: We notice in the September number of the GAZETTE a short article from a Paris contributor recommending small doses of magnesium sulphate for the removal of warts. There are a great multiplicity of remedies, scientific and otherwise, for the removal and cure of these unsightly and annoying excrescences. We would call attention to ethylate of sodium, which will be found very efficient for the removal of warts, cicatricial tissue, small scars, etc. Sodium ethylate is a white powder, powerfully caustic and very explosive. It should be kept in a cool place. Unlike most other caustics

its action upon living tissue is painless. One or two applications of the alcoholic solution will be sufficient to remove the most obstinate wart.

R Sodium Ethylate,oz. j.
 Alcoholoz. x.
 M. Signa. Apply with an orangewood stick.

It may be further suggested that a napkin dipped in ice water and wrapped around the bottle containing sodium ethylate will prevent all danger of an explosion while handling.

San Jose, October, 1898.

A. O. HOOKER.

Reports of Society Meetings.

CALIFORNIA STATE DENTAL ASSOCIATION.

DISCUSSION OF CLINICS.

DR. FRANK C. PAGUE.—Devitalizing Exposed Pulp.

Dr. Frank C. Pague.—In my clinic this afternoon I endeavored to show a mode of devitalizing teeth, posterior teeth in particular, where we find it necessary, by a means that to me has proven more satisfactory than anything I have been able to get hold of. I prefer it because there is little or no pain in its use, that is, the aching and soreness that we usually have from placing the devitalizing fibre. I prefer it again because it can be retained for an indefinite time without any danger of future trouble. The preparation that I use is very simple, consisting of minute particles of crystals of arsenic and about double that quantity of alum; into these particles I drop a drop of campho-phenique and take the mass up on a small pledget of devitalizing fibre. You could use cotton just as well as the devitalizing fibre, but I prefer the devitalizing fibre because in it we have morphine, which, of course, will assist in keeping the tooth quiet. I have experienced some soreness in the teeth after the second or third day, but not sufficient to inconvenience the patient to any considerable extent. The soreness the patients complain of is to the extent that they prefer to

favor the tooth—they don't want to bite on it—but not to the extent of aching. To overcome that I have been using recently iodoform; where I have used iodoform I find that there is no soreness whatever. This application I have been using for some three years. In my hands it has proven more satisfactory than anything I have ever used where it has been necessary to place the devitalizing fibre, to leave it there for any particular length of time. Of course there are other modes of devitalizing. I have demonstrated this not as an exclusive mode, but as one of many ways. I have had this devitalizing fibre in a tooth for from seven to ten days. I could leave it there a month or three months without any possible danger or trouble. There is not any soreness; that is one nice feature about it. I have removed the pulp and filled immediately. I should be pleased to have any one ask me any questions as to anything in which I can enlighten them.

DR. A. N. DICK.—Swaging Metallic Plates.

Dr. A. N. Dick.—Mr. President, the object of my clinic this afternoon was to demonstrate the feasibility of swaging metallic plates with counter dies made of impression compound—modeling compound. The thought is not original with me. I gained the idea from the *Dental Cosmos*. I have been using it about a year and a half. Perhaps it might be well to state the method of procedure: I use a die made of a fusible metal, that melts at about 221 degrees, by pouring the metal alloy into a plaster impression. Then I use an ordinary molding ring filled with modeling compound for a counter die. The ring of compound is immersed in boiling water till the compound is soft, then the die is pressed into the compound to the proper depth and the whole placed in cold water to harden the compound. The subsequent procedure is the same as with other forms of counters. Sometimes it is necessary to make two or three counter dies. You can very easily make a new counter die. They can be made in ten minutes; perhaps not as long as that. One of the advantages that may be claimed for this method is that the time saved is valuable. I don't know that there is anything further to be stated in regard to it,

except that I would like to hear from gentlemen who have had experience with aluminum. I think it is quite an improvement over rubber, the old style.

Dr. Metcalf.—I would like to say a word in reference to the clinic. It has opened up, apparently, a new field. I have worked at my own old method with the die and then counter dies, yet not to any great extent; it is so laborious, such a long way around, that I gave it up largely on that account. I have no doubt I will profit in the future by the knowledge gained from observing the simple manner in which Dr. Dick performed the operation. It strikes me to be an indication for all of us to try that method and see what we can do with it.

Dr. Pague.—I would like to ask Dr. Dick what his method is in making the rubber attachment—what his mode of attachment is for the rubber?

Dr. Dick.—I use the 18-gauge; that is rather heavy plate. I turn it out at right angles, long enough to put spurs, say, from an eighth of an inch to a twelfth of an inch. Before attaching the rubber have your plate absolutely clean and dry. It is a suggestion I saw in some of the journals and appropriated it. When you want to attach your rubber, apply first a chloroform solution of rubber. By that means you get the rubber on an absolutely dry surface. Then I vulcanize at very low heat and have no shrinkage of rubber. I have had no curling up of rubber, or anything of that kind. There is one other point in regard to swaging of the plate that is absolutely insisted on: Cleanse the plate before annealing during the swaging process. You know pieces of metal sometimes will adhere to the plate; unless that is cleaned off thoroughly (I use sulphuric acid for that purpose at ordinary temperature) you will find on annealing that these base metals burn right into the plate.

Dr. Pague.—I would like to ask the gentleman if he has experienced any trouble with the rubber detaching itself and the spurs disappearing; in other words, has the spurring been absorbed, as it were? To my mind, I have not been able to determine the reason, but in some cases the spurs have been cleaned from the surface as though a

file had been run over it. I would like to know if he has had any such experience?

Dr. Dick.—I have been making plates nearly thirty years, but not so many of them as within the last year and a half. I have never had one single case where the rubber became detached from the plate during the six years I have used aluminum.

The President.—Dr. Platt gave a clinic.

DR. FRANK L. PLATT.—Open-Faced Gold Crown.

Dr. Platt.—I will use the blackboard. In making an open-faced gold crown there are a few points to be kept in mind. As in making any other crown, it must be made strong enough to sustain whatever strain is to be put upon it, and it must be made to fit the tooth. I have had patients in the office who, when I suggested the open-faced crown have said, "Oh, I have had friends who had them, and they did not last; they came right off." I have seen many that came off, but I never saw a crown made strong enough and that fitted the tooth that failed from any fault in the crown. The method I used today is a simple one, the easiest method I have ever seen for making an open-faced crown. I believe all these crowns should be fitted to the tooth in the mouth; not on models or dies. The only method I have ever seen of a die successfully used is the L. L. White, such as is used in San Francisco by the L. L. White Tooth-Crown Company. Their crowns can be made to fit if the proper pattern is made, but the dentist has not in his office the apparatus that company has. By fitting the band right to the tooth in the mouth it is possible to get a good fit, if the tooth is prepared properly. Now a cuspid tooth presents some such condition as that perhaps [drawing]. It presents two ovals lying at right angles to each other; one at the cervical border, and one about the middle of the crown. The circumference of the tooth should be left no greater anywhere than it is at the cervical border. The open-faced crown will flatten itself over the oval at this point, the middle of the crown, and then will bend the other way as it reaches the cervical portion of the tooth. It is not necessary to cut this tooth down here to any great

extent to get the crown to fit; simply cut the tooth until you can get the band to fit the cervical border. By using a piece of wire twisted around the tooth as a gauge you can readily see what I mean. When it can be twisted tight at the cervical border and then removed without cutting, the tooth is trimmed sufficiently. Then, in making the crown after the tooth is properly trimmed, make the ordinary gold cylinder as for any gold crown and force it up over the tooth. I generally drive these bands up, using a light hand-mallet and piece of hard wood; a hickory ramrod sawed into six-inch lengths is very good. Then have the cylinder cut out the back and front like that—not greatly, but so you can see inside of it; then take a little pointed instrument and scribe around the palatine side, indicating what portion must be cut out to agree with the palatal surface of the tooth, the point of which should be cut off slightly and a shoulder cut on the palatal side near the gum. Then, having the back of the cylinder cut to fit the palatal surface of the tooth, cut out a little more of the front, being sure to leave the band at the cervical border wide enough to insure sufficient strength.

I once made a crown for a patient who was very anxious to have as little gold show as possible. I cut that band too narrow. In the course of time it stretched and finally broke, and the bridge was loosened. I had to do the work over again. When the patient has reached a condition where it is necessary to have bridge-work, you want to sacrifice a little beauty for the sake of utility. Leaving that portion of the band wide enough and heavy enough to insure strength, take a piece of pure gold plate, 30-gauge, which makes as nice a backing as there is for that kind of work (I think far better than platinum, not only on account of the color, but because it can be so easily adapted to the surface of the tooth) and cut out a strip wide enough to cover the back of the crown and come over the cutting edge of the tooth; attach it right here at the cervical portion of the palatal side of the band with a little drop of solder so you have a piece coming over the tooth like that. Then burnish the backing closely to the tooth and band, remove from the mouth and solder into place. The crown

can then be thickened with solder on the palatal side and the cusp built down with the same material. If the intention is to use that for a pier for bridge-work you solder the band originally on the palatal side. Leave it so you can throw the solder clear across, and cover that and it makes it very strong. The tooth can be cut down and the crown made in less than hour in almost any case, and it makes, if the work is done carefully, a perfect fitting crown.

Dr. Copsey.—The crown Dr. Platt made is a very nice one. But I can hardly agree with him in the suggestion of the crown adapting itself to the border in bridge-work. It will do all right in the case of just a single crown, but in a case of bridge-work, say you want to carry a lateral tooth here [illustrating]. This is the cuspid. You want to carry a lateral tooth; the central is attached; this is to carry a lateral tooth. When you come to spread that this way you have got to shove that lateral over. From the explanation, the cutting edge of the tooth is here. You have got to shove that lateral over so you will not have room to spread your band and then let it spread back again. It seems to me in that case it would be a failure. I would like to ask Dr. Platt if he has any way of overcoming that? To my mind there is no way of overcoming it.

Dr. Platt.—There only has to be room for the thickness of the gold here. I can show you such a case in my own mouth. You can see it.

Dr. Copsey.—I don't think that the Doctor understands me perfectly. Take the diagram you drew of the two teeth; take one similar to that and one similar to this. Now this is the cutting edge of the tooth; this is the neck of the tooth. Now, we have a tooth that comes in here, the same as that one on the other side. And in spreading that band so that it will pass over the tooth you can readily see that it will shove this tooth that is carried here over until it would seem to me that it would not pass by on account of the other tooth.

Dr. Platt.—It will pass by, Doctor; you try it and you will see how readily it will adapt itself. I have done it in

many cases. First I thought I would have that same difficulty, but this method is successful.

Dr. Lundborg.—This is supposed to be a cuspid tooth. As all cuspid teeth are contoured, there is a much wider surface toward the cutting edge of the tooth than at the neck. Do you trim this down?

Dr. Platt.—Yes, to a certain extent.

Dr. Lundborg.—Now, there is a difference between the neck of the tooth right here and towards the coronal surface; do you cut that down?

Dr. Platt.—Yes. If the circumference is no greater anywhere than it is there your crown will adapt itself perfectly. You have only to cut the tooth down until you can just work around the neck.

Dr. Lundborg.—Suppose there is a lateral or bicuspid here. Does it require a great deal of cutting down?

Dr. Platt.—Not a great deal; not as much as you may imagine.

Chairman Van Orden.—I wish to mention one point of some importance. If the crown is made simply straight up and down to fit the tooth it will not be very shapely and would often allow the passage of food to the interproximal spaces. Rounding out the crown approximately is quite an important thing, and can be accomplished by adding layers of crown metal with solder. Dr. Platt is doing a service to us by calling attention, as he has in a number of cases and a number of places, to the open-faced cuspid crown. I had occasion to make one some time ago, and later on the tooth broke off at the gum line; on the removal of the crown I found the points of contact between the enamel and the crown in perfect condition. It was an excellent opportunity of testing it, and persuaded me once for all of its reliability. There are too many entire gold crowns put on cuspid teeth where open-faced crowns could just as well or better be used. With two cases of bridge-work in the same mouth I used one entire and one open-faced crown, and regretted that I did not use the open-faced on both. My first practical experience in the use of the open-faced crown was after seeing a clinic given by Dr. Platt at his office some years ago for the San Francisco Dental Asso-

ciation. His method only differs from that published by an Eastern gentleman in the use of pure gold instead of platinum for burnishing over the lingual surface.

DR. FRANK C. PAGUE.—Bleaching Teeth With Continuous Hot-Air Current.

Dr. Pague.—The tooth, as many of you saw today was very dark; you might say a black-blue or blue-black tooth. It is the darkest tooth that I have presumed to bleach by means of this syringe, that is, the continuous hot-air current with 25-per-cent. pyrozone. The continuous hot-air current is kept constantly in the cavity. From the time the lamp was lit until the current was started into the tooth it was about three minutes until the tooth began to heat up; that is, three minutes from the time the lamp was lighted and the current was thrown on that I placed the current into the cavity. Inside of three minutes—some three or four minutes more—the tooth became uncomfortably warm. Tested by thermometer in one minute's time the temperature went up to 120 degrees. I have used this appliance for about two months. This is the third or fourth time I have used it for bleaching process. This is the first time I have used the 25 per cent. I have got satisfactory results from five per cent.; but, as I remarked, this is the darkest tooth that I ever attempted to bleach. We did not have or could not get the five per cent. I started with three per cent. and found that the result would not be satisfactory, or that it would take too long, and so used the 25 per cent. I use the syringe for sensitive dentine. By placing the rubber dam, drying the cavity with a little carbolic acid. I dry the carbolic acid into the sensitive dentine and can cut almost with impunity, the sensitiveness having almost entirely disappeared. For setting crowns I don't know of anything that will take its place. I take off this small point, throw the current direct on the tooth. All the secretions that are likely to seep around the margin disappear. I have been so pleased with it that I felt that I was doing the profession and humanity a great favor by showing it to the members of this Association.

Dr. Barker.—I was very sorry that I did not see the

tooth before Dr. Pague commenced to bleach it. I saw it after he had been using the current a few minutes. I must say it was not a very dark tooth at that time. There must have been some transformation there if it was as he described it, and I have no doubt that it was. I have a great deal of faith in pyrozone, the 25-per-cent. solution, as you all know from what I tried before you last evening. So far as the continuous hot-air current is concerned, I am not very well posted. I am very favorably impressed with it, however.

Dr. H. B. Copsey.—I had the pleasure of witnessing most of Dr. Pague's operation this afternoon. I will say that when Dr. Pague said that tooth was a blue-black when he commenced on it he did not exaggerate the case. The tooth was quite dark; you might call it black; when he finished it was as pretty and white as any the young lady had in her mouth. To my mind it would be hard to place a value on the operation to the young lady; it was invaluable.

Dr. A. N. Copsey.—I saw the clinic before and after its completion. I was not a bit surprised. I knew what he was going to accomplish when he started in. I use the instrument in my office at home, so that it was not anything new. I was satisfied that Dr. Pague was going to accomplish just what he started in to do, and when I saw him finish he had done what I expected to see. There is no question about the Cooper hot-air syringe being a valuable instrument in our office. For obtunding sensitive dentine I have given it the place of cataphoresis. Five minutes is as long as I want to obtund a very sensitive tooth, to go right ahead and cut into it. It is for setting crowns just what the Doctor has said it was. It has not been exaggerated the least bit. The only objection I can find to it is that it is my way on my bracket; that is a very slight objection of course. It is an instrument to save torture. It is a good instrument. I told Dr. Cooper that I would give a clinic on it if someone else did not do it, and I show the instrument here. Dr. Pague has done it and done it thoroughly. I am afraid to undertake it now, for fear I would not have as good success.

Dr. Pague.—One moment. I will ask with regard to its

use for sensitive dentine if you throw the hot-air current direct on the tooth? if so, doesn't it cause a great deal of pain? I don't throw the hot-air current directly on the tooth, but take the current at a low temperature, when it is almost cold, and raise the temperature, holding the nozzle directly over the cavity. As the temperature rises of course the tooth heats up gradually.

OAKLAND DENTAL CLUB.

THERE was a very good attendance at the November meeting held on the evening of the 2d.

Dr. W. F. Lewis submitted a report on constitution and by-laws. After some consideration with a few slight alterations the constitution and by-laws were adopted as a whole, and a committee authorized to procure bids for printing.

Dr. P. Bosworth Aiken was admitted to membership.

Dr. S. A. Hackett, who had promised an "item of interest," was unable to be present.

Dr. Lewis will furnish the "item" for December.

Dr. C. L. Goddard read a paper on the subject "Filling Pulp Canals," which will be published in a future issue of the GAZETTE.

A very essential addition has been made to the Club furniture in the shape of a blackboard.

The Club is in a flourishing condition, there being nearly fifty members.

STOMATOLOGICAL SOCIETY OF SAN JOSE.

A LARGE number of prominent dentists were in attendance at the monthly meeting of the Society held on the evening of October 3, 1898. The meeting was called to order at 8 o'clock by Dr. A. A. Fowler, president pro tem.

Dr. Lawrence Finnigan was admitted to membership.

Dr. J. L. Asay, of the College of Physicians and Surgeons, read an interesting and scientific paper entitled

"Chronic Purulent Pericementitis." The subject was treated in detail, bringing out the latest theories, and was followed by a healthy discussion.

Dr. A. A. Fowler gave a clinic on lining cavities with collodian—silver and collodian—gold coating, preparatory to the permanent filling.

The Society adjourned to meet October 25th.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, SEPTEMBER 13, 1898.

CLINIC.—Dr. W. J. Younger. Replantation.

Discussed by Drs. Younger, Pague, Root, Merriman Jr., Lundborg and Cool.

MEETING OF TUESDAY, SEPTEMBER 27, 1898.

CLINIC.—Dr. F. L. Platt. Exhibit of a method of setting Logan crowns, introducing the use of the intra-dental band.

MEETING OF TUESDAY, OCTOBER 4, 1898.

CLINIC.—Dr. F. L. Platt. Operation on inferior maxilla to relieve a condition showing a discharge of pus from region of second right inferior molar, the tooth having been extracted for several years.

Dr. Morfiew donated to the library the transactions of the Illinois State Dental Society for the last nine years.

MEETING OF TUESDAY, OCTOBER 18, 1898.

Exhibit of cases by Dr. F. L. Platt.

a. Natural inlay, restoring incisive portion of upper right central. Inlay in place sixteen months and doing excellent service.

b. Bridge from left lower first bicuspid to second molar. Gold crown on upper second molar attached to only a portion of the tooth left after removal of nearly all the crown, the tooth having greatly elongated.

c. Same case as exhibited two weeks previously. Description of final operation appearing in this issue of the GAZETTE and entitled, "A Case in Practice," at page 620.

d. Gold fillings in upper right bicuspid, Morgan & Hastings gold being used; also Ivory's matrix. Attention called to contour and proximal contact.

Abstracts of discussions of clinics of September 13th and October 4th and 18th will appear in GAZETTE for December.

PACIFIC COAST DENTAL CONGRESS OFFICIALS.

OFFICERS of the Pacific Coast Dental Congress elected at the session held in Portland, Or., in August were:

President.....Russell H. Cool, San Francisco, Cal.

Vice-President.....B. S. Scott, Ellensburg, Wash.

Secretary-General.....R. W. Meek, Oakland, Cal.

Treasurer.....A. F. Merriman Jr., Oakland, Cal.

These officers with Dr. Frank C. Pague constitute the nucleus for a new general committee.

General Medical Miscellany.

FOR BURNS.—*Pinus canadensis* cannot be too highly recommended as an application to burns, especially when very extensive, the skin being entirely removed. A weak solution of glycerine is squeezed from a sponge over the denuded surface, which is then dressed with some soft ointment, either with or without the *pinus canadensis*. Pain immediately abates and the healing process is wonderfully rapid. The solution must be freshly applied as often as the dressings are renewed.

TO REMOVE WAX FROM THE EAR.—According to the *New York Medical Journal* Alberto Ricci of Turin has ascertained that the solution of hydrogen dioxide possesses the peculiar quality of rapidly disintegrating the obstructive masses of cerumen in the ear. It suffices to pour into the meatus auditorius externus a small quantity of the solution and leave it for a few minutes in contact with the ceruminous plug. The latter is then most easily and safely removed by syringing with water, even though it were a hard concretion.

LIQUID AIR AS AN APPETIZER.—Liquid air presents surprising possibilities as a medicine. A Russian physician has already begun to experiment with it. He placed a dog in a room with the temperature lowered to 100 degrees below zero. After ten hours the dog was taken out alive and with an enormous appetite. The physician tried the test him-

self. After ten hours' confinement in an atmosphere of still, dry cold, his system was intensely stimulated. So much combustion had been required to keep warm that an intense appetite was created. The process was continued on the man and the dog, and both grew speedily fat and vigorous. It was like a visit to a bracing northern climate.

FOREIGN PRACTITIONERS IN BERLIN.—The Police authorities of Berlin have issued an order which is of special interest to foreign physicians and dentists. It is permitted to display the title of "Arzt" (physician) upon a "shingle," provided it is at the same time designated where that title has been obtained, *e.g.*, "N—, Doctor of Dental Surgery, of Chicago," etc. The native medical men have taken stand against this order upon two grounds: First, because German physicians have not the same rights in other countries, especially in Switzerland; and secondly because it is a useless order in Germany, where, in fact, anybody may practice the healing art. The profession is, however, making strenuous efforts to terminate by legal means and measures this freedom of practice, but the success of such measures is at least problematical. Many persons of political influence have come out against the physicians, maintaining that every one has a right to select his own executioner, and may physic himself to health or to death as he may elect or as chance may decide.

OVER-EATING.—The dictum that while civilized man cannot live without dining, he might live a good deal longer without so much dining—or, rather, without dining so extensively,—may be excepted without any reservation. A celebrated physician once said that he had been convinced by circumstances that had come under his notice in the course of his experience that mischief in the form of disease has accrued to civilized man from erroneous habits in eating. Many of our best-known medical men say that the habit of over-eating is at the bottom of most troublesome diseases. There is no doubt that the habit is most often contracted in childhood. There are many mothers who feed their babies as often as they cry, taking it for granted,

in the most imbecile manner, that the baby cries for food, when more often the helpless little creature is crying because it has already had too much food. When the stomach once becomes accustomed to being crowded with food, if the supply is cut short, there is at first a gnawing sensation that is frequently mistaken for hunger. If people who experience this will only persevere a little longer in their abstinence they will find themselves greatly benefited by it.—[Dental Brief.

ASSIMILATION OF IRON FROM CEREALS.—Professor Bunge of Basel, (*Zeitschrift für physiologische Chemie*, xxv, 1, 2; *Weiner klinische Wochenschrift*, August 11, 1898), finds that the iron of cereal grains is contained mostly in the bran. To ascertain the assimilability of this bran iron, he fed four young rats with white bread and four others with bran bread. The experiment was continued for two months, two rats being killed at various intervals. The smallest amount of hæmoglobin found in the blood of the bran-fed rats was always greater than the largest amount in the blood of the other rats. Moreover, the bran-fed rats grew faster than the others.

THE MODERN BULLET WOUND.—The study of the effects of the modern bullet wound has brought to light some interesting facts bearing more particularly on the relations of calibre to velocity of transit, in which the destructive tendency of the latter is markedly shown. Both the Spanish and the American armies are supplied with rifles of practically the same calibre and the comparison of results can be estimated only in connection with the rifle wounds made during our civil war by the Minie ball. In the small bore arms the initial velocity is in a definite degree proportionate to the shortness of range, although not much essential difference is noted within a distance of five hundred yards. Obviously the direct penetrating power of these missiles is greatly increased, they scarcely ever lodging in but almost invariably passing entirely through the body. The wound of entrance, in accordance with the ordinary rule, is small and cleanly cut, that of exit being large and ragged. The latter condition is shown in a very

striking degree as to size and laceration on the side of the damaging effects of the small bullet. The exits of the modern missile are surprisingly large, due doubtless to the degree of resistance to the velocity. Consequently when bone is struck the comminution and laceration are correspondingly extensive and destructive. In brain wounds the skull is for similar reasons extensively shattered, the brain substance in the track being reduced to a pulp by the expansive force of transit. Judging from these facts, as verified on the field of Guantanamo by Assistant Surgeon Van Duser, U. S. N., the only comparative safety was guaranteed by simple flesh wounds in which no considerable extent of tissue was involved. Fortunately there has been no opportunity for studying in our own sailors the wounds of larger dimensions caused by shells and flying splinters of wood and steel, but those from which the wounded sailors of Cervera's ships suffered are said to have been terrible.—[Medical Record.

Dental Excerpts.

To KEEP LIGATURES from slipping down after tying, paint the ligature with Imperial varnish or carbolized resin.—[Dr. R. McCargar.

A PARTIAL IMPRESSION.—A very good method of taking a partial impression is to press modeling compound between the teeth, then take a plaster impression; after removing, take out the compound and place on the impression.—[Dr. R. McCargar.

To FOLD GOLD FOIL WITHOUT CONTACT OF THE FINGERS.—It is certainly known by every careful operator that many unsuccessful fillings are caused by contact of the fingers in preparing the foil for introduction. The writer has successfully pursued a simple mode of procedure in handling gold foil without contact with the fingers which may be new to many, and which is as follows: The book of foil is held in the left hand and opened to the first leaf, the right half of the book is slightly raised so that the outer edge of

the sheet of foil nearest the right hand will fall, with the help of a little shaking, inward so that the two edges will be approximated at the central fold of the book, which is then closed on the folded gold and pressed into contact with the fingers passed over the outside covers of the book. The same process is repeated until the leaf foil is folded to the desired number of thicknesses. The strip of folded foil can then be cut into strips the desired width with shears.

To prepare gold and tin for cohesive working take a whole or half sheet of gold foil and anneal on mica, do the same with a half or quarter leaf of tin and anneal carefully in proportion to the degree of heat the tin will bear without melting, then fold the tin strip inside the leaf of gold foil so that the gold completely envelopes the tin to an equal thickness on both sides. —Dr. A. G. Weber, Havana, Cuba.

TINNING SILVER PLATES.—In a recent number of the *Dental Cosmos* I find the statement made by an essayist "that it is necessary to send a silver plate to a tinsmith to have it tinned," so that adhesion between plate and vulcanite can occur. Any mechanical dentist can tin his own plates with perfect success and with ease.

It is, of course, a well-known fact that not only is any silver surface brought into contact with vulcanizable rubber at a vulcanizing heat soon covered by a film of silver sulfide from the reaction between the metal and the free silver in the rubber, but the contact surface of rubber fails to vulcanize,—i. e., the presence of the silver prevents the chemical combination of sulphur with caoutchous which occurs in vulcanizing by reason of the superior affinity of the silver for the sulphur. If a film of metal unaffected by the sulphur be interposed between the rubber and silver, vulcanization occurs. The intermediates used for this purpose have been a film of gold made by electro-deposit, a sheet of gold or of tin carefully molded over the metallic surface to be covered by the vulcanite, and a film of pure tin melted over the surface to be vulcanized upon. From practical experience with all methods, the writer has found the last-mentioned to be the best of all, and the most easily followed.

The silver plate is swaged, the rim wire outside and in-

side is soldered to the piece, the teeth are arranged, and the proper positions of the retaining cleats are determined. These cleats are made of scraps of silver plate bent into W forms. At least three of these cleats should be made after the following manner: Strips of silver plate about one-eighth inch wide and one inch long are filed clean, dipped in a saturated solution of zinc chloride and rolled in tinfoil No. 4; then held high above a Bunsen flame until the tin melts. They are then bent to the W form; one is to be placed at a middle point of the plate, one on either side beneath the molars, and it is better if one be placed under the bicusps of both sides. These cleats are to be soldered to the plate by the tin used in tinning. The plate is warmed until the teeth and wax can be removed without bending the wax or disarranging the teeth. The plate is boiled in sulfuric acid, and the surfaces to be covered by rubber and the wire are polished bright. The plate is set upon the die and the entire surface to be vulcanized over is spurred by using an angle of a sharp vulcanite chisel to raise barbs closely placed over the entire surface, similar to the barbs upon a broach.

The barbed surface is now painted with zinc chloride, and a sheet of tin foil No. 4 is pressed upon the surface until the latter is covered. The plate is now held above, not in, a Bunsen flame until the tin fuses. The even distribution of the tin is assured by passing the brush charged with zinc chloride over the tinned surface until the surface is seen to be perfect. The cleats are next set in position and the plate heated as before, when the tin fuses and attaches the cleats. The plate is now scrubbed with strong soap; do not pickle it! The wax and teeth are returned to position, waxing perfected, and the piece is flaked so that no silver is exposed, and when the wax is removed no metal other than the tinned surface is visible. If these directions are carefully followed out the attachment of the vulcanite is as close as with gold plates. The writer has observed in cases where the electro-deposit method has been followed a deposition of the gold to strip away from the silver. Of course, if cleats and barbing be sufficient, this makes no difference. —[H. H. Burchard in Cosmos.

ANNEALING GOLD.—You will never appreciate the true working qualities of cohesive gold until you quit passing it in the lamp. Use a sheet of mica or an annealing tray. Don't be penurious. The good effects will pay for the difference.—[W. H. Weaver in Dental Weekly.]

PINK RUBBER IRRITATES THE MUCOUS MEMBRANE.—In packing vulcanite cases as little of the pink rubber as possible should be allowed to come in contact with the gum. The pink rubber is largely charged with coloring matter, and this irritates the mucous membrane of the mouth. This is especially the case in full lower cases, and all cases ought to be lined if possible with a thin layer of black, which is the purest rubber.—[F. McKenzie, British Jour.]

News Miscellany.

MOSQUITO BITES.—The intense irritation of mosquito bites is said to be relieved promptly by the application of ipecacuanha—either the wine or the powdered root made into a paste with water.

READING ALOUD.—Reading aloud is an excellent practice in the home circle, and medical authorities agree that it is a most invigorating one. Persons who have a tendency to pulmonary disease should methodically read aloud at stated intervals, and even recite or sing, using caution as to posture, articulation and avoidance of excess. Here is where our scientific professors of vocal culture in elocution and singing should find immense service in the establishment and development of health.

RATS AS A HAIR TONIC.—A Chinese gentleman advocates the use of the rat as an article of diet, and makes the following remarks on its properties as a hair restorer: "What the carrot is to a horse's coat, a rat is to the human hair. Neither fact can be explained, but every horseman knows that a regimen of carrots will make his stud as smooth and lustrous as velvet, and the Chinese, especially the women, know that rats used as food stop the falling out of hair and

make the locks soft, silky and beautiful. I have seen it tried many times, and every time it succeeded."—[Ex.

HAIR.—A writer in an English weekly journal says that it is a curious fact that red-haired people are far less apt to go bald than those with other colored hair. The average crop on the head of a red-haired person is only 29,200 hairs. Ordinary dark hair is far finer, and over three dark hairs take up the space of one red one; 105,000 are about the average. But fair-haired people are still better off; 140,000 to 160,000 are quite a common number of hairs on the scalp of a fair-haired man or woman. A curious calculation has been made to the effect that the hairs on the head of a fair-haired person, if they could be plaited together, would sustain a weight of something like eighty tons, equaling that of five hundred people.—[Medical Record.

MARRIAGE LAWS.—Last week Representative Parker introduced a bill in the Ohio legislature which has for its purpose a regulation of marriage which is of very great import to the people of not only this State, but its enactment into a law and reasonable enforcement would surely be followed by similar enactments in other States.

The bill provides that all persons seeking marriage license shall be examined by a board of three physicians, to be appointed by each county probate judge, who shall examine such persons to see that they are free from insanity, dipsomania, tuberculosis, cancer, venereal and other hereditary diseases, and are not criminals.

The bill is a reasonable and just one, and represents a sentiment already expressed in the pages of this journal. That such a law would be productive of great good, reduce suffering and mortality rates there can be no question. Modern medical science has attained such a degree of perfection as to warrant such measures.—[Cin. Lancet-Clinic.

SOURCE OF COLOR.—The sources of colors used in the arts is given as follows: The cochineal insects furnish the gorgeous carmine, crimson, scarlet and carmine lakes; the cuttle-fish gives sepia, which is the inky fluid which the fish discharges when attacked; Indian yellow comes from the

camel; ivory chips produce the ivory-black and bone-black; the exquisite Prussian blue comes from fusing horses' hoofs and other animal matter with impure potassium carbonate; various lakes are derived from roots, barks and gums; blue-black comes from the charcoal of the vine-stock; Turkey-red is made from the madder plant, which grows in Hindostan; the yellow sap of a Siam tree produces gamboge, while raw senna is the natural earth from the neighborhood of Sienna, Italy, and raw umber is an earth found near Umbria. India ink is made from burnt camphor; mastic is made from the gum of the mastic tree, which grows in the Grecian Archipelago. Bistre is the soot of wood ashes; very little ultramarine—obtained from the precious lapis lazuli—is found in the market. Chinese white is zinc, scarlet or iodide of mercury, and vermilion is from quicksilver ore.—[Industrial World.]

College Notes.

THE freshman class of the University of California Dental Department, defeated the University of California Pharmacy College in baseball recently after a spirited game. Score—Dentals 19, Pharmacy 16.

THE preliminary session of the Dental Department of the College of Physicians and Surgeons, which opened on the 1st of October, is being well attended. Everything points toward a large increase in the freshman class upon the commencement of the regular session in January.

THE College of Dentistry, University of Southern California, commenced its second year with flattering prospects. There are 31 students in the freshman class, 12 juniors and two seniors. A fine infirmary has been fitted up for the treatment of such patients as are recommended. There are twelve chairs in the operating room, a library, technical department, faculty room, reception room and office, all handsomely fitted for the purpose for which they are designed. The outlook for the coming year is most promising.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

THEORY VERSUS PRACTICE.

ALL operations in practice have their origin in more or less well-developed theory. Even methods accidentally discovered are not universally adopted unless sustained by a logical argument demonstrating their desirability. It is true all operators do not agree, and there are occasional exceptions to all rules of practice, but as a general thing successful operations are sustained by generally accepted theories. It is thus that various methods of cavity preparations, numerous ways of using filling material and a number of forms of gold, amalgam and cement have all been introduced into general practice. The theories have been accepted and their values demonstrated.

Looking backward through the history of modern medicine and dentistry no subject can be found which has attracted more attention, or given rise to more earnest argument, or been of greater value to all the allied branches of medical science than the germ theory of disease and the methods advocated for promoting asepsis.

It does not matter how much this theory has been overdeveloped by some of its perhaps too-zealous advocates, or how much of a fad it has become with others seeking notoriety, or attempting to follow methods whose true value they did not recognize, the fact remains that *strict cleanliness followed by thoroughness of operative procedure* are the two basic principles upon which rest all our successful operations.

These facts are taught in all our schools; they are heralded far and wide in all our professional literature; their

value is undisputed, and yet how little is done by many to promote in practice the theories so ably advocated.

How many college faculties demand the sterilization of their students' instruments, where in a free clinic operations of all sorts are performed on a miscellaneous assortment of patients coming from all classes and all grades of society, and asepsis is most demanded and most to be desired? We do not know of one. How many colleges are provided with sufficient means, hot and cold water and convenient basins for the washing of students' hands as they pass from one patient to another? Few if any in the United States. Some colleges have adopted the use of operating coats, and better facilities than usual have been provided the students for promoting personal cleanliness; but what can be expected of students who go out into practice with the habit already formed of constantly violating one of the noblest theories they have heard expounded?

We are credibly informed that there are colleges where it is part of the janitor's duty to remove each day from the floor and from the cuspidors by the operating chairs the pieces of rubber-dam thrown there by the students, and to wipe or wash them off and save them for future use in the college clinic. It hardly seems possible that so filthy and dangerous a practice is permitted, but unfortunately it seems to be a not uncommon practice. Who, then, can be surprised if dentists are found, recent graduates, if you please, who use and reuse their rubber-dam until it is rendered unserviceable by frequent perforation, or who staunch the flow of blood and saliva in patients' mouths with soiled napkins and odoriferous sponges swarming with bacteria; or who scarcely stop to wash their hands between patients, and who never thoroughly cleanse their instruments?

There is certainly a wide gap here between theory and practice, and the blame should rest on those in whose hands lie the training of our students, and who do not

enforce when they might those rules of practice on which success and health, and even life may depend, and on which they built their own practices and good reputations.

GIVE CREDIT WHERE CREDIT IS DUE.

It is a pleasing thing to have one's work copied, or one's writings quoted by those who seem to find in them sufficient merit to warrant their reproduction, but the pleasure is certainly diminished to an extreme degree when due credit is not given the author, and the reproducer seems to be taking to himself all the honor of the original production. It is thus we felt on opening the *Atlanta Dental Journal* for the second quarter of 1898 and seeing a *GAZETTE* editorial on "Work for the Colleges" copied in full and no credit given to either ourselves or the journal we edit. We trust that this lapse was an oversight on the part of the editor, and presume that it will be corrected in a future issue of the *Journal*, and we therefore deal as leniently with him this time as the circumstances of the case and our good nature will permit.

PERSONAL.

DR. E. L. INMAN was in the city for a few days.

DR. M. D. GLIDDEN visited the city during October.

DR. C. C. COBIERE, of Redding, was in the city for a few days.

DR. S. P. COKE, of Oakland, is having a short vacation in Arizona.

DR. A. M. BARKER, of San Jose, made a flying business trip to the city.

DR. A. L. TIBBITTS has returned to Petaluma, after a short stay in the city.

DR. R. E. CAMPBELL, of Woodland, is now located in the Parrott building, this city.

DR. I. G. SHAW, of Sacramento, passed through the city on the 24th ultimo enroute to San Jose.

DR. M. MACKIE, a graduate of the Philadelphia Dental College, is in the city. _____

DR. MONTGOMERY THOMAS, of Fresno, made the city his home for a few days. _____

DR. C. A. LARISON has returned to Yreka after a brief visit to San Francisco. _____

DR. W. H. WADSWORTH, of Ukiah, was in the city for a few days recently. _____

DR. MILTON McMURRAY, of Crescent City, made a brief visit to San Francisco since last issue. _____

DR. L. W. MOORE, of Antioch, has left for home after entering into a life partnership. Our congratulations go with him. _____

DR. JOHN ROBERTSON, residing at 2104 Market street, city, had the ill-luck to fall from his bicycle last month and break his arm in two places. _____

DR. A. E. BLAKE has returned to the city from the cattle ranges of Nevada, where he is largely interested. The healthy color of the Doctor's face denotes that cow-boy life evidently agrees with him. _____

OBITUARY.—Edward Sewell Fiske, a graduate of the U. of C. Dental College, class of '97, died enroute from Manila of general debility and dysentery. The body was embalmed at sea and brought to this city for interment. _____

DR. W. A. TURNER, who has been in the Klondike country for several months in search of the yellow metal, has returned with his wife, who accompanied him. The Doctor is cheerful over his prospects, having secured several good claims, and will return in March next with a force of men to work his claims. _____

DR. A. C. HART, professor of clinical dentistry and microscopy in the College of Physicians and Surgeons of this city, has gone East for a two-months' vacation. While there he will visit the principal dental colleges in New York, Boston and Philadelphia, studying the latest methods in connection with college work. By special invitation he will

read papers before the Academy of Stomatology of Philadelphia, and the Odontographic Society of Chicago, and at the Central Dental Society of New Jersey, on Prevention of Decay in the Teeth.

NATIONAL SCHOOL OF DENTAL TECHNIQS.

THE next annual meeting of the National School of Dental Technics will meet on the 28th and 29th of December, 1898, in the Club-rooms of the Grand Hotel, Cincinnati, O., beginning promptly at 10 A.M. with an address by President G. V. Black. The partially made-up program is as follows: "The Value of a Graded Course of Study and Uniformity Among Dental Schools," by C. V. I. Brown; Reports of Syllabi Committees; Operative Technics, by T. E. Weeks; Prosthetic Technics, by N. S. Hoff; Symposium of Teaching Methods, by W. H. Whittaker, C. M. Wright and H. H. Burchard; Steel Technics, by C. H. Wilson; Teaching Cavity Preparation, by C. N. Johnson; Master of Exhibits, Grant Molyneux.

Discussion on the papers will be opened by prominent teachers. It is hoped that all interested in the newer methods of teaching in dental schools will be present. The profession is cordially invited to attend.

D. M. CATTELL, Sec'y-Treas., Chicago.

Laughing Gas.

"THERE goes a man who awoke one morning to find himself famous."

"You don't say so! What did he do—write a great poem, or sink a collier, or"—

"No; he's a dentist, and once filled the teeth of the victim of a murder mystery."—[Chicago News.]

A MAN in the car was telling how good his doctor was. "Clever?" said he; "well I should say he was. The other day I called him in when I had swallowed five cents. He said if the coin was not counterfeit it would pass, and made me cough up \$2.

PROFESSOR (to class in surgery).—The right leg of the patient, as you see, is shorter than the left, in consequence of which he limps. Now what would you do in a case of this kind?

Bright Student.—Limp.

"Now, Bennie, here's the medicine, and here's the dime papa left to pay you for taking it."

"All right, mamma. If you take it and don't tell I'll give you half."

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Original Papers.

EVOLUTION OF DECAY.

BY ABCH COMBS HART, PH.B., D.D.S., M.D., SAN FRANCISCO, CAL.

[Read before the California State Dental Association, June 23, 1898.]

SINCE the publication of my paper on "Bacteria of the Mouth," which was received by the profession with such favor, I have been so impressed with certain facts that grew out of the study of bacteria and decay that it occurred to me that something more definite might be learned of decay by accumulating and reflecting on all sorts of facts that could possibly have any bearing on it.

After another year's work, I again present the subject before you. The work, I realize, is not near an end, for it will take years to complete it; for, I believe, the study of decay is of sufficient importance to merit much thought and investigation, and its presentment in this incomplete form is with the hope that others will take up the study, so that we may get closer to the truth about decay.

I cannot here give references and authorities for my statements, and must trust to your being familiar with the facts in chemistry, physiology and kindred sciences that I have made use of for the general conclusions at which I have arrived. I realize the necessity of hereafter publishing a more detailed account of my work with the proper references on which my conclusions have been based.

I believe decay to be a natural force which acts through

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media upon all material bodies, with the effect of changing their identity.

I do not consider it a process of a force, nor as the result of the action of a form of energy, but as a force or form of energy that is only known to us by its manifestations through matter--effecting changes from a state of soundness or perfection to one less sound or perfect.

I would classify it on the same general basis as gravitation, or any of the other great forces of nature. Gravitation existed and man used its power long before Newton formulated the law of gravitation. Men did not understand how the force acted.

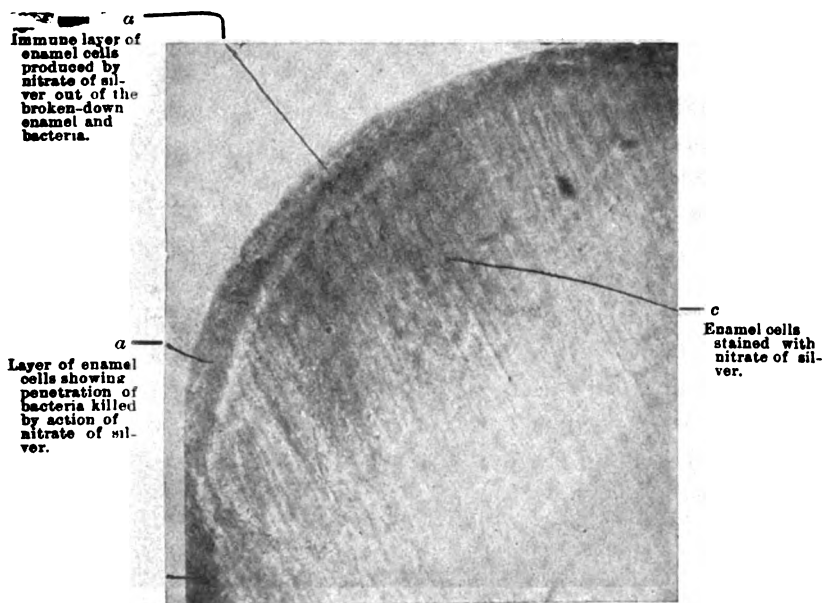
So with the force decay. For ages men have recognized and used this power and depended upon its action for their existence. In these living bodies are we not dying to live, and living to die? But to prove that this force acts with other forces in making men and worlds grow old would be difficult. The lack of demonstration, however, makes it no less a fact. All things are growing or decaying; advancing in integration or disintegration. The change from perfection to one less perfect, to my mind, results from the action of a force, and I term it decay. Surely life is a force. Why then is not decay a force? I know you will admit that the exercise of force is altogether unintelligible; we cannot imagine it except through the instrumentality of something having extension. All this does not solve the problem; only postpones it.

So, while it is impossible to form any idea of force in itself, much less to prove its existence, do you wonder that it is equally impossible to comprehend its mode of exercise as decay. We all think we are very much alive, and this fact is to each of us, beyond all others, the most certain; yet it is a thing which we cannot prove. Human intelligence is incapable of absolute knowledge. Every new theory is sure to lead to a new scepticism. All forcible conceptions have been one by one on trial, been weighed in the balance of Time and found wanting. So, while I believe decay to be a force, causing the redistribution of

matter that everywhere is in antagonism, everywhere gaining now a temporary and now a more or less permanent triumph, I cannot prove it; I can only theorize on it, and such a course of itself is necessarily imperfect.

Fire, air, light, electricity, acids, alkalies, salts, alcohols, oils and water I take to be some of the important media through which decay acts in effecting change of identity seen in material bodies.

FIG. 1.



[Objective $\frac{1}{6}$; Eye-piece, 2 in.]

Section of enamel showing penetration of nitrate of silver into enamel partly decomposed by bacteria. *a*, Immune layer of enamel deeply stained. Taken from a young lady's mouth in which white decay was rapidly destroying the teeth. This tooth was treated three years ago to nitrate of silver without filling. Decay stopped in all teeth thus treated. Tooth crowned.

I shall not attempt in the present article to discuss how decay acts through the various media, but will give you a brief sketch of the results of my study of its action through water.

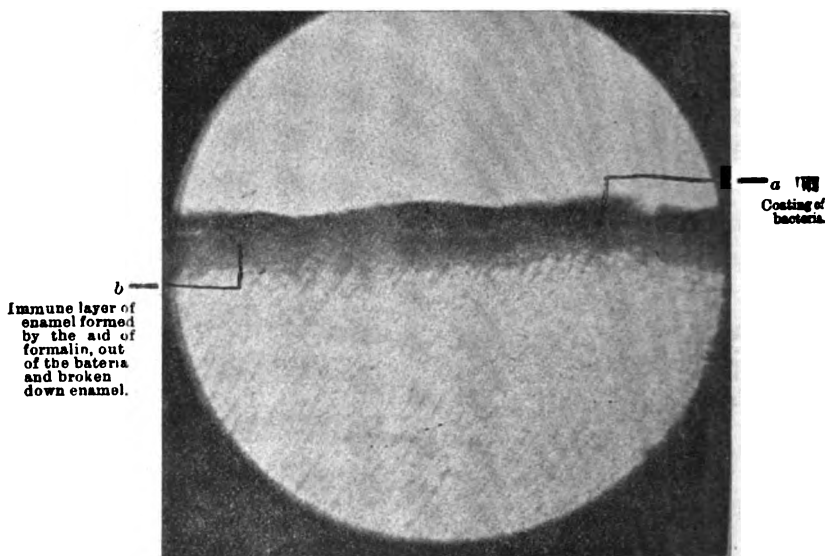
In citing water as one of the most important media I have done so because it is one of the most universal of all

compounds as well as the greatest of Nature's solvents and cements.

Science has already proven that upon water for many of their combinations depend the animal, the vegetable and even the mineral kingdoms. The cells hold imprisoned within its walls water of combination. The crystal holds within its angles water of crystallization.

I do not think any argument is necessary to prove the

FIG. 2.



[Objective $\frac{1}{2}$ oil immersion.]

Section of enamel showing immune layer that has been produced by the action of formaldehyde or formalin upon the enamel. Hardened in alcohol 50-per-cent. formalin 10-per-cent. while still warm. Stained with Rubin & eosin and oil of clove-mon. The staining brings out the depth of penetration or the fact of bacteria. Under direct sunlight the bacteria can be seen penetrating the enamel.

importance of water as a medium for the action of decay.

In explanation of the action of many chemical compounds, chemistry, to my mind, teaches that many of the acids, alkalies, salts, alcohols and oils are antiseptics or germicides chiefly owing to their relative affinity for water.

To say a substance is germicidal because it kills germs

is like calling pistols homicides because they kill men. Such an answer is not sufficiently scientific. How do antiseptics and germicides act as a class? What are the principles involved? When answered, then comes the practical application of the principles in such a manner as to be most useful to man, both in the prevention and growth of bacteria.

Bacteria, we have already learned, will not grow on tissues that have been treated with solutions of certain strength of bichloride of mercury, nitrate of silver, chloride of gold, sulphate of copper, chloride of tin, formaldehyde, the essential oils, and many of the alcohols, acids and alkalies.

For example, in the treatment of gonorrheal ophthalmia, the cause of as much blindness as any one disease, after having thoroughly cleansed the eye by repeated douchings of luke-warm sterilized water, there is instilled several drops of a two-per-cent. solution of nitrate of silver, which, if used in time, will suffice to stop the disease.

Again, in that dread disease diphtheria, if the site of inoculation and growth of the first cultures of the bacteria can be discovered and thoroughly painted with a saturated solution of nitrate of silver, and the proper doses internally of tincture of chloride of iron, this disease may be as effectually arrested as by any other treatment yet discovered. I believe the Woodbridge treatment for aborting typhoid fever is along similar lines.

How these chemicals act so as to prevent the growth of bacteria is summed up in my paper on "Bacteria of the Mouth," as "being due to their ability to harden albumen and render it insoluble to the action of bacteria; that they were powerful in preventing decay just in proportion to their ability to form insoluble albuminates with the various tissues of the body."

How they harden albumen and render it insoluble I shall explain as follows: Chemistry teaches us that nitrate of silver and the list of germicides already named, likewise alcohol, acids, alkalies and oils, are constantly demanding water. That in many instances when applied to tissues

they cause a shrinkage or expansion quite beyond recognition. That the changed appearance noted in the tissue is due, in part at least, to the altered condition of the water in the tissues.

The nitrate of silver, for example, has so changed the water of combination that the bacteria cannot penetrate the film thus formed with the tissues, and the bacteria in the tissue have either had sufficient water removed from them to cause their death or else have become so confined that they cannot get the water necessary for their proper growth. The soil has in reality become hardened inso-much as it is now insoluble to their digestive action, and might with truth be called antiseptic.

Bacteria, I believe, enter the body in a manner similar to that of the roots entering the ground of higher forms of the vegetable kingdom. They must gain lodgment, and then just as the roots with their digestive fluids dissolve the soil and even penetrate rocks, so bacteria penetrate the tissues, unless the cells are too insoluble, or contain substances having a greater affinity for the water necessary for the growth of bacteria.

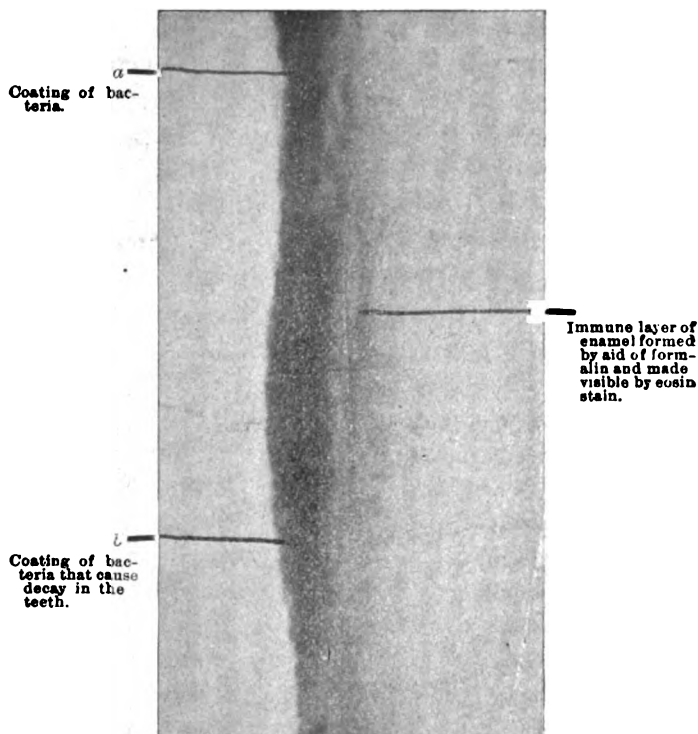
In proof of the importance of rendering the water in the tissues inaccessible to bacteria, and that the way the cells render themselves germicidal is by removing the water from the bacteria themselves, or else so placing the water of the tissues as to be insoluble to the digestive action of bacteria, I have thought it necessary to explain why foods are preserved from the action of bacteria by cooking, drying, freezing, salting, sugaring, in alcohol, acids, alkalies and oils.

In cooking foods, boiling, frying, baking, etc., the water is driven out of them, so that they shrink quite beyond recognition. Bacteria, when present of course, are generally killed, and those that may get lodgment do not grow well, owing to the decreased quantity of water now present in the tissues. Freezing solidifies the water in the tissues and while they remain frozen the water is inaccessible to bacterial growth.

Drying removes the water of combination in part, so

although the tissues may be covered with bacteria, the bacteria do not grow; not because the bacteria are dead, but because they cannot get the water necessary for their growth. The proof that it is only water that is needed anyone knows who has had experience with dried foods that have become damp.

FIG. 3.



[Objective $\frac{1}{2}$; Eye-piece, 2 in.]

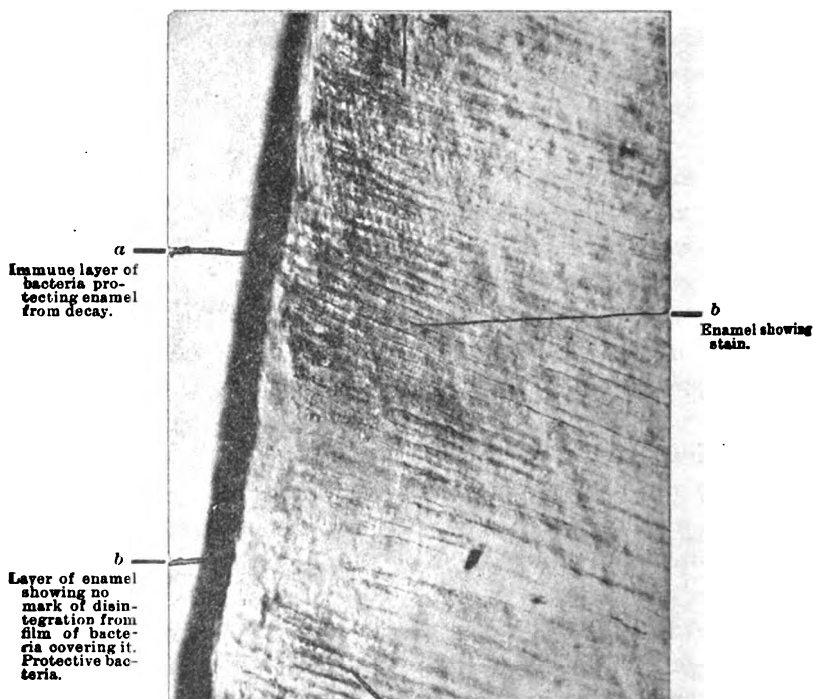
Same section as Fig. 2, under a higher power. Shows coating of acid-producing and enamel-destroying bacteria.

In the use of smoke as applied in curing hams, bacon, etc., the heated air removes water from the tissues, and in its penetration carries into the tissues creasote and the other active agents that have an affinity for water. The creasote, etc., removes the water from the tissues, and es-

pecially from the surface and because of a more immediate contact forms a layer insoluble to bacteria.

Salting or sugaring are similar. The salt abstracts water from the tissues. Salt is sprinkled over fish as they are packed in vessels for preservation without the addition of any brine, as they are said to make their own brine—the salt literally squeezes the water out of the bodies of the

FIG. 4.



[Objective $\frac{1}{2}$; Eye-piece, 2 in.]

Section of enamel taken from a mouth where the teeth seemed immune to decay. Tooth lost from pyorrhea alveolaris.

fish. Any child knows that eating sugar will make him thirsty.

When we eat salty foods or much sweets we *remove the water from our tissues, in reality cause a fever and thirst, just as if we were ill with some disease characterized by an increase of temperature.* The sugar or salt enter the

tissues and remove the water in part, and this increases the demand on the part of the tissues for more water.

So with alcohol. A night at the club is sure to bring with it an "elegant thirst," and perchance, 'ere the morn, that horrible delusive nightmare of the rich man in hell, who must eternally go dry.

Bacteria, we have already learned, are only able to thrive when liberally supplied with water. There are other conditions necessary, as temperature, rest, light, etc. I mention water, as it is one of the conditions I believe we are able to control sufficiently to prevent their growth.

When a patient is down with typhoid fever or any of the fevers that owe their development to bacteria, the patient suffers horribly with thirst and fever. Why? You say rapid oxidization. Is that clear to your mind? I believe it is, *because the growth and development of bacteria is consuming such enormous quantities of water that the system is over-drained, and the patient, if his tissues have not sufficient vitality to hold the water in combination, dies often simply because the bacteria have used up all the available water.*

Natural laws do not change. The same laws must govern the simple cell as govern the rest of life. What is man but an aggregation of specialized cells, each helping or hindering the other? If he is more human than the rest of the animals, is it not because he is better acquainted with nature's laws?

Physiologists speak of cells becoming specialized in their work of elaboration in the body. They mean that the cells divide up the work of the body just the same as a body of men divide up the work of a community. By reason of this division of labor they are able to do their work better; they are specialists. To illustrate: the liver is an organ whose cells are specialized in the secretion of bile, glycogen, etc.; while the periosteum might be called an organ having cells specialized in the secretion of bone-forming materials. So when the bones of the old are fractured they do not readily knit, I believe, because the

cells specialized in the secretion of bone-forming compounds have almost entirely disappeared, emphasizing an old truth in evolution, viz., "the survival of the fittest."

Now I hold it is the ability on the part of cells to become specialists, capable of doing one thing extremely well, that imparts to the organism immunity from certain diseases. The cells, learning that bacteria tend to remove the water from them, endeavor to fix the water in themselves. They may do this by the elaboration of some chemical compound that has a greater affinity for the water of combination than have the bacteria. Be that as it may, the bacteria cannot get the water necessary for their growth.

So, when a man has had smallpox, scarlet fever, yellow fever, measles, whooping cough, etc., which diseases certainly confer immunity for a time to another attack of the disease, I take the cells of the body that are thus attacked to have become educated, so as to resist the solvent action of these bacteria in removing the water from the tissues.

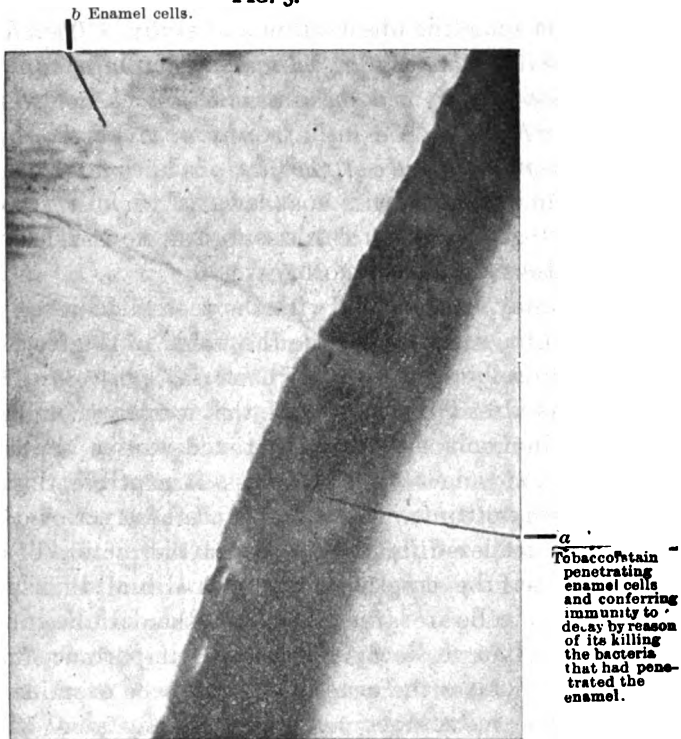
How they do this is another question. From analogy to the soils on which higher plants grow I am inclined to believe they form combinations that are of such a chemical nature as to make cells insoluble to the digestive action of bacteria. True, they may form toxic compounds; but I have not yet been able to understand why certain compounds are toxic; why one individual is poisoned by a minute dose of cocaine, while another of apparently the same degree of health can take enough to kill five men without experiencing any inconvenience; why certain poisons can be taken in gradually increased doses so that enough may be taken to kill ten men without serious results to the individual, whom we say is accustomed to the drug; and same with climates.

An animal like the field mouse, that is ordinarily immune to anthrax, if compelled to turn a wheel all day so as to become thoroughly exhausted, losing, as it must, large quantities of water, if now inoculated with anthrax

readily succumbs to the action of the growth of this bacillus.

Mankind has learned that when a person becomes run down in health so that the tissues of the body are in a condition of either atrophy or hypertrophy they readily succumb to the attacks of bacterial disease, that previous

FIG. 5.



[Objective $\frac{1}{6}$; Eye-piece, 1 in.]

Section of tooth showing penetration of tobacco stain into enamel. Tooth, lateral incisor from man aged 53. Has used tobacco since he was a boy. Mesio-approximal cavity with tooth-structure black from infiltration of stain. Cavity has been there for years, never became any larger, so he never had it filled. Tooth evidently immune to the action of bacteria. Tooth lost by loosening and dropping out.

to which they were immune. *I believe that it is the variation of the amount of water in the cells that makes disease possible.*

Water is the chief compound in the animal and vege-

table kingdoms. Nothing can be absorbed into the system until it is in solution in water. I call special attention to these scientific facts, as pathologists and other scientific observers have long recognized that any unusual increase or decrease in the weight of an individual was indicative of disease.

I call attention to this fact, as one of the truths resulting from scientific observation and study. *Therefore, I believe if it is through a change in the main compound of the body that it becomes possible for disease to manifest itself, whether it be an atrophy or hypertrophy of the tissues, resultant from the action of bacteria, chemical or natural forces, THE MORE STABLE WE CAN FIX, SEAL OR COMBINE THE WATER IN THE TISSUE, THE MORE EFFECTIVE WILL BE ITS POWER OF RESISTING DECAY.*

From my experiments with the teeth I believe it is possible to fix, seal or combine the water in the teeth so as to be inaccessible for a time to bacteria.

It has already been proved that certain conditions did confer immunity for a time to the digestive action of bacteria; that some teeth were less susceptible than others; that decay oftentimes is checked and the layer of decalcified dentine rendered immune to the further action of bacteria; that while the cracks in the enamel and the spaces between the cells are large enough for the entrance of bacteria there is often no decay of sufficient importance to attract attention, unless the enamel or dentine be examined by the aid of the microscope and differential stains. Then the surface enamel and dentine will show bacteria adhering, and even penetrating for a considerable distance the structure of the tooth. (See figs. 1, 2, 3.) The extent of decomposition thus produced by bacteria may be as I have stated, only visible through the microscope or differential staining. (See fig. 1, *a*; and fig. 2, *b*.) For example, when a tooth presenting the white chalky spots of beginning decay be treated with a solution of nitrate of silver, the extent of decay can be readily seen. (Fig. 1, *a*.)

This partially decomposed surface containing millions of

bacteria, I believe, can be made to take up substances capable of forming a layer immune to bacterial growth. (Figs. 1, 2, 3, 4, 5.) So I have given the term "immune layer" to any layer of enamel or dentine that has become sterile to the growth of bacteria. This layer is partly due, in some mouths, to a protective film of bacteria that has become stained, and remains adherent to the surface of the teeth. (Fig. 4, a.)

I have observed many mouths in which there was no decay, or where decay had ceased; and occasionally getting such teeth for examination (fig. 4) I have found the outside layer of enamel and dentine to be stained with various compounds. The exact chemical nature of these compounds I have not been able to prove to my entire satisfaction. On scraping off this protective stain, the microscope reveals it to be chiefly bacteria, and, because of this, I am inclined to believe that certain bacteria have the power of protecting the teeth, just as lichen growing on rocks protect them from disintegration.

The bacteria causing this particular discoloration I have observed growing near the gum margin, and in places difficult of cleansing, especially on the lingual and approximal surfaces. Their growth on the teeth will be noticed as a peculiar black or redish line, and when present I am quite positive I shall find no decay. (Fig. 4.)

So I take it that there are certain bacteria which of themselves have the power to confer immunity from attacks of those bacteria that cause the destruction of the teeth.

You have noticed in mouths where the decay is slow that the decayed portion is always discolored. The cause of this discoloration is an important question, and in many mouths one quite difficult of solution. In many instances I have found the discoloration is tobacco stain. (Fig. 5.) This, I observed, had penetrated quite deeply the enamel and dentine, and, by the aid of direct sunlight reflected by the mirror up through the Abbe condenser, and the speci-

men under the microscope, I was able to see many bacteria which had taken on the stain from the tobacco.

This suggested that the discoloration seen in decay was partly due to bacteria having become stained. (I recognize the fact that there are several bacteria growing in the mouth that have the power of producing color.)

The use of direct sunlight in the examination of specimens stained to show bacteria will make visible bacteria as far as they have penetrated the tooth structure. This idea I got from observing how a ray of sunlight would make visible the bacteria and particles of dust in a dark room. I immediately made use of it in my study of specimens of teeth under the microscope. It was not necessary to grind them so thin to show bacteria penetrating both enamel and dentine.

This immune layer is sometimes due to the cracks and spaces in and between the cells having become filled with insoluble compounds, as is seen in teeth stained with tobacco or nitrate of silver, chloride of gold, sulphate of copper, etc., similar to the manner that oil covers the surface of water and retards its evaporation. In other words, the water already in the enamel, dentine and bacteria has attracted compounds that have a greater affinity for the water in the tooth substance than have the bacteria. So decay stops for a time, simply because the bacteria cannot grow down in the enamel, not because the hole is too small, but because the water in the tooth has become too insoluble or inaccessible to the digestive action of bacteria. The remains of the dead bacteria actually serves as a filling and protection against the entrance of other bacteria.

Carrying into actual practice the application of the principle, viz., protecting the water in enamel and dentine by causing the tooth, and the bacteria as far as they have penetrated the tooth to take up certain substances dissolved in water, like formaldehyde, nitrate of silver, chloride of gold, sulphate of copper, chloride of zinc, chloride of tin, and a whole host of substances of a like nature that I believe have the power of protecting the water in the

tissues from the growth of bacteria, I have been able for the past three years, and so have many of you, to stop decay for a few months where the teeth were literally melting away before the action of bacteria.

Last year, at the Pacific Coast Dental Congress, I advocated the use of formalin or formaldehyde as an agent with great power in the prevention of decay due to bacterial action. After another year's experience I can report nothing but success. I have found it a boon to these desperate cases of recurring decay, where the teeth seem to be literally melting away before the digestive action of bacteria.

For the past year I have used formaldehyde about as follows: After cleansing the surface to be hardened with pyrozone (three-per-cent. medicinal) I make several applications of the formaldehyde, varying in strength from two to forty per cent., forty per cent. being full strength, as it comes to us from the shops) to the cavity, carious surface, and healthy portion of the tooth and teeth under the rubber-dam, from ten to forty minutes. The cavity is then dried out and coated with a saturated solution of paraform in chloroform, to which has been added sufficient hard Canada balsam to make the solution a thin varnish. Into this, after waiting for the varnish to nearly dry, may be burnished amalgam, stuck gold, gutta-percha or cement.

Formaldehyde should never be applied to the surfaces of the teeth, except the rubber-dam be in position, fitted evenly around the necks of the teeth, so that there shall be no holes whereby the mucous surfaces of the mouth may become exposed to the action of formaldehyde, as it produces an ugly slough.

In the application of the formaldehyde it is important to have the surfaces of the teeth free from all adhering colonies of bacteria so as to be sure and kill all bacteria that have penetrated the enamel or dentine. I generally include under the dam five or more teeth, so that I can treat their surfaces to a bath of formaldehyde, thus arresting and preventing the occurrence of decay. I repeat this operation until the teeth have been so treated. If it is a

very bad case have the patient return every three months for treatment.

So far, after two years, I have noticed no recurrence of decay, or new cavities forming in the teeth so treated.

Dr. Eugene S. Talbot thinks the coming dentist will be required to spend most of his time in expansion of jaws and correction of irregularities of the teeth. While there can be no doubt as to the importance of the above measures, I believe the real work of the dentist of the future will be the arrestment and prevention of decay as produced by bacteria.

I believe it will be a step in advance, and that, too, along scientific lines, when we as a profession recognize and use agents that prevent the destructive action of bacteria in the teeth. When once the people fully realize that bacteria alone are the cause of their soft, chalky teeth, and that it is possible to so harden the teeth that they will resist the solvent action of bacteria, then the gilded and glaring signs "painless extraction" will have to come down. Dentistry will become a profession loved by mankind, and to be called a dentist an honor.

DISCUSSION.

Dr. F. L. Platt.—I really feel it an honor to be called upon to open the discussion of Dr. Hart's paper; not because I happen to know anything in particular about its subject; it is as new to me as it is to most of others here; but because I appreciate the work that Dr. Hart is doing, and I like Dr. Hart. Dr. Hart is erratic. I heard one man say yesterday, "Well, that little man up there is as crazy as any of his bugs, but he is doing good work." [Applause.] I heard another gentleman say that a man in order to be a specialist and to do really good work in any special line had to be warped all out of shape for doing anything else. I think he unconsciously paid Dr. Hart a very high compliment. To be an ordinary individual is not anything to be particularly desired. I always think of ordinary men and common sense right in the same line. One of the brightest men I ever had the pleasure and the honor

of knowing said that common sense was little better than no sense. Educated sense was what men needed. Ordinary people are little better than no people. It is the erratic, the extraordinary people who move the world and all its concerns. Dr. Hart is doing a line of work that calls for an amount of energy and labor that I think few men realize. I have been at his house and have heard him talk; no one can be anywhere near him without hearing him talk. By the way, he is always worth listening to. Many people can talk a great deal but say very little. Dr. Hart says a great deal while he talks. He is sitting up late at nights, working nights and Sundays and all times in the line of this one specialty of his—microscopy. There are few men capable of carrying on that work. Few men have the patience, the perseverance and the natural gift for carrying on that line of study. So far as dentists are concerned, I only know of one other man in the world whose name is familiar to all of us, and that is Dr. J. Leon Williams (an American by the way), who is taking up this line of work. There are others engaged in it too, but he is the one whose name is familiar to all of us. I predict that before many years Dr. Hart's name will be just as familiar as Dr. Williams'. [Applause.]

It is all very well to tell about methods of treating disease, instruments and remedies to be used and all the rest of it, but, unless we get down to the basic principles and causes, we cannot scientifically study the effects, we cannot scientifically treat any disease. Dr. Hart is going right down to the foundation of cell-growth, cell-development, as he said tonight; and it is from the investigation of such men that dentistry and medicine and all of the natural sciences will derive their greatest benefit.

There are two or three points in his paper that, I think, should receive particular attention. The point that he made that decay is a natural force is one. It never has so occurred to me before. But it is apparent; it is an axiom. It is a natural force going on all around us; no matter whether it is in the mouth, in a log of wood, in the dying and decaying plant. The point that he made that decay acts through many media, but particularly through the presence

of water, and the deductions that he draws from that one fact are worthy of considering. Bacteria, he tells us, are plants, and, like plants, die if moisture is denied them. He also argues that bacteria being the cause of decay, and depending upon a supply of moisture, if this moisture is denied them in any way the decay must stop. Therefore, getting right down to the pith of his paper, if any remedy can be found, any medicine or anything in the world can be found that will make the water in the tissue inaccessible to the action of bacteria those tissues will be immune from decay.

He speaks of the use of formalin. That is a remedy which for the last two years has been highly extolled; in some instances much defamed; in many cases very much abused. But the fact remains that in that remedy we have today perhaps the best germicide, the best tissue-hardener that there is in the whole list of our *materia medica*.

The Doctor suggested one thing in his paper: he said that metallic salts were germicides principally through the action upon water in the tissues. And it occurs to me that some erratic scientist like Dr. Hart will some of these days discover a metallic salt which can be made to penetrate the enamel and the dentine without discoloring them, and in that way perhaps give us a means for making all teeth perfectly immune from decay. We have all noticed that teeth filled with the old-fashioned styles of amalgam, teeth that have been filled twenty-five, thirty-five or forty years, or even longer, with great crevices around the filling, the fillings black and the teeth stained black, are not decaying. There is immunity there due to the presence of these metallic salts. To take up the line of study, as Dr. Hart has done, and watch the action of these metallic salts may yet solve the problem why those teeth are immune to decay and what will make all teeth immune.

I have been using this preparation of formalin quite extensively, perhaps not as scientifically as Dr. Hart has done—I am not capable of that—but the result has been very satisfactory. If it can be made possible in anyway to make this formalin permeate the enamel of the tooth, or the exposed portions of dentine where the enamel is worn

away by the force of mastication, and to maintain it in that position, our profession will, as Dr. Hart says, be looked upon as a blessing rather than as a torture; a kind of necessary evil, as it is looked upon today. I hope others will follow me in discussing this paper. I do not feel capable of doing it justice. It went over a wide field, but every paragraph is worth considering. When it is printed in the proceedings of this Association I hope every member will read it and go to work on the same line that Dr. Hart is working, if so inclined and erratic enough to take up this study and give us something that is scientific, reliable and exact, something that we can depend upon, theory backed up by absolute facts discovered by just such men as our erratic friend, Dr. Hart.

CREASOTED CHARCOAL POINTS FOR ALVEOLAR ABSCESS.

BY E. B. TAIT, OAKLAND, CAL.

DURING the early part of August, this year, in conversation with a country dentist (whose name I unfortunately forgot), he suggested to me the use of creasoted charcoal points in cases of alveolar abscess, and stated he had marked success with the method.

I determined to try them, and my first case presented on August 20th. Mr. M., came in with an abscess on left upper lateral; slight pericementitis; no swelling; a mere trace of pus flowing down the root. I put in a creasoted charcoal point after drying out the root-canal and dressing with oil of cassia sealed with chloro-percha and cement. Next day the pericementitis was gone, no pain even on percussion; dismissed for a week; then, the tooth being comfortable, I put in a large gold filling, occupying two hours' time, hand-malleted thoroughly. No pain after the filling was completed; no pain or trouble a week after, and no adverse report so far.

My next case was Miss D., a slight, sensitive, highly nervous girl of 15 years. Her anterior upper teeth were

in the following condition: Approximal cavities in right lateral, two cavities in right central, two in left central; one cavity in left lateral; pulp dead in left lateral, left central and right lateral. All three were abscessed, pericementitis present; no swelling; slight discharge of pus down all the root. Saw her every two or three days; cleaned out all the canals with great difficulty on account of painfulness of the inflamed membranes; dressed the canals with oil of cassia and inserted creasoted charcoal points; painted the gums with iodine. A week after plugging the root of the left central, I put in a large solid restoration, taking three hours' hand-malleting; next week put in gold restoration in left lateral and separated centrals to fill approximal cavities; later put in gold restoration in right lateral; no trouble at any time in any of the teeth. The right and left second upper bicuspid had dead putrid pulps in them. After cleaning out the root-canals I put in creasoted charcoal with the same success.

Miss M., a girl of 14 years, with the right upper central loose and abscessed, pericementitis present—pus flowing down root. After vainly endeavoring to cure the abscess by the old methods, I determined to use the charcoal points. It was impracticable to place the root in an aseptic condition on account of the flow of pus, so I boldly inserted the creasoted charcoal in the canal and sealed the canal with chloro-percha, filling the cavity with cement. Next day, little soreness; no swelling; two days later tooth had settled back into its socket, no pain on percussion, and no apparent evidence of previous existence of abscess. I saw the case this week, a month after the treatment, and the tooth is perfectly comfortable.

Miss H., aged 19; left upper lateral abscessed, pus flowing down root-canal; slight pericementitis; NO TREATMENT. Put in creasoted point at once. After cleaning out root-canal, three days afterward, I put in gold restoration, taking two hours' hand-malleting. No pain or trouble since.

Miss C., aged 40; abscess on left upper central. Opened up root-canal with Gates-Glidden drill; dressed with oil of

cassia and iodoform. Next day free discharge of pus; dried out root-canal and dressed with oil of cassia and inserted creasoted charcoal point; third day put in large gold restoration, taking three and a half-hours' hand-malleting; no soreness after the operation; no trouble since.

Mr. S., a returned Klondiker, called on me, as his teeth were causing him some trouble which he could not locate. I found no cavities unfilled, but the root of the left upper wisdom had inflamed the gum in its vicinity. I removed this and he was relieved. He returned in two days, saying a left upper cuspid, in which was a large amalgam filling, was uneasy, and had been for the past two months. This tooth had been filled in Seattle in January, this year, nine months ago, and he requested the removal of the filling. This I did and found the root-canal had been carefully filled with chloro-percha. The gutta-percha was fetid on removal, adhered closely to the walls of the canal, but was discolored at the surface next to these walls. I removed the gutta-percha carefully with Gates-Glidden drill and probes, being particular not to go through the foramen. I dressed the canal with oil of cloves on cotton, closed the cavity with cotton and dismissed the patient. The afternoon of the same day he returned with his face swelling. The tooth had been at no time very sensitive to percussion, nor was there any sign of active inflammation. He had some capcine plasters, and I told him to go on using them occasionally. Next morning the facial tissues were engorged and discolored, the left eye was almost closed, the gum over the tooth puffed and shiny, a hard swelling anterior to the canine eminence could be felt through the outside of the cheek. I painted the gum with iodine to induce the abscess to point over the tooth. Next day the abscess showed its intention to point where I wanted it, and I passed a sterilized Donaldson broach right up the root till the patient felt pain; on withdrawal a drop of bloody pus followed. I repeated the operation, then plugged the canal without further cleaning with a creasoted charcoal

point and sealed the cavity. Next day the swelling of the face had almost subsided, the swelling and hardness over the root had nearly all disappeared, there was a slight discharge of pus from a fistulous opening over the root; I pumped in some peroxide of hydrogen which inflated the abscess and a little pus came out with the effervescence. I put a waxed thread into the fistula to keep it open after running a carbolized silver probe up to the bottom of the abscess. Next day the swelling was gone, the tooth was comfortable, there was a small watery discharge from the fistula, and that was all. Three days after this I saw the case; all the swelling had gone, the tooth was not sensitive to percussion, the fistula had closed, leaving a little scar, but not a single other sign of the previous condition; all the uneasiness at the root that the patient complained of had left. The active treatment in this case was very little, the only question to me is: was it a case of spontaneous cure, or did the creasoted charcoal point effect or hasten the fortunate ending? From the time I took out the amalgam filling until I saw the case apparently cured it was just ten days.

These were typical cases, and I have also followed the same procedure with bicuspid, and in one case with an upper molar, and I have heard of no bad results so far, though the method is empirical.

I make these cases public now, so that if they should report to other dentists and not to me the failure of the method may be known; for, though the treatment may appear a haphazard one, the result is marvelous. In the case of Miss C., the tooth which was one day loose, painful, and in a generally unhealthy condition, was next day quiet and apparently healthy, and if there had been any lurking inflammation present, surely three and a half hours' hand-malleting would have set it up.

I put forward the method tentatively, requesting any of my confreres into whose hands my failures may fall will favor me with an account of the case from their standpoint; for we know well that our failures do not always

return to us. We are all subject to criticism, and I feel only pleased if I hear condemnation of any method of treatment I pursue.

This treatment is not original, and its results may be disastrous; but if they are I want to know for my own benefit as well as for the benefit of all who may read this article, and for those who may be led to try the process. The question in my mind is, after putting in the charcoal, what becomes of the already formed pus, the pyogenic membrane, the so-called sac of the abscess, the organized infiltration of the tissues? and why is the noxiousness of the cause of the abscess annulled?

These questions I leave to older and wiser heads than mine to answer. The results of the irritation—pus, etc., may be removed by the circulation, but the irritant is still there, and is rendered innocuous—how?

EARLY DENTAL AMALGAMS.

BY J. FOSTER FLAGG, D.D.S., SWARTHMORE, PA.

IN my remarks during discussion at the annual meeting of the New Jersey State Society, July, 1897, I stated what I then believed to be correct, that the "silver paste of M. Taveau" was composed of silver coin filings—9 parts of silver to 1 part of copper—made into a paste by incorporation with mercury.

Shortly afterward I noticed an assertion that it was made of "pure silver," and that, "for convenience," silver coin was subsequently used.

Asking for "authority" for the "pure-silver" statement, I was referred to page 222, "American System of Dentistry." Then writing the author of the chapter containing that page, I was referred to page 61 of the "History of Dental and Oral Science in America," and then learning that the gentleman (Mr. James E. Dexter), whose manuscript for that work was "revised" by the committee, had

died several years previously, I determined to investigate, as I felt much interest in the matter.

To this end I wrote to those whose knowledge and possession of books seemed likely to be sources for information, receiving most kindly and courteous replies, but no help.

I visited all the libraries that were available, but without other result than disappointment, and yet, with the remembrance that "history" is a record, *more or less correct*, of individuals, some of whom lived and others of whom did not, and of events, some of which occurred and some of which did not, I was not surprised to find that while the two books mentioned gave the "pure-silver" and, "for convenience, coin" statement, the latest, "The American Text-book of Operative Dentistry," ignored the "pure silver" altogether and stated definitely that Taveau's silver paste was made of filings of coin silver (silver 9, copper 1,) combined with mercury (page 219).

Recognizing that *both* these statements could not be correct, I was increasingly stimulated to further effort, in which, through the combined kindness of Dr. C. V. DuBouchet, of Paris, France, and of Dr. William H. Truman, of Philadelphia, I have been enabled to gather evidence which seems to show that, *so far as Taveau is concerned*, nothing that is *strictly correct* has been given by either book mentioned, while the latest is absolutely incorrect in every particular, there being in this connection no less than half a dozen errors in less than a dozen lines!

In the "History of Dental and Oral Science in America, prepared under the direction of the American Academy of Dental Science," page 61, we find "about the year 1826 M. Taveau, of Paris, advocated the use of what he called 'silver paste' for permanent fillings. Under this, as it were, shining title, was ushered into the world what was destined to be for years the hydra of dentistry."

While this nicely rounded paragraph seemed sufficiently plausible for its introduction as the heading to the "Amal-

gam" article (page 24) in my "Plastics and Plastic Filling" it is gratifying to me *now* that I placed it only as a quotation, without comment or endorsement, and gave regarding "Amalgam" only that which, in large part, I knew to be true, either from my own knowledge, or from that of personal information from participants in the events narrated, for *I think it safe to say that there is not one word of truth in the Taveau statement from beginning to end!*

Through the kindness of Dr. DuBouchet I was favored with the extract from M. Taveau's "Hygiene de la Bouche," 1826, the *first* edition, which, on page 159, states "the manner of filling teeth differs entirely today from that of a few years ago," and then, after mentioning lead and gold leaf, continues: "Today a hard metal is employed which the approach of slightly heated iron promptly fuses," etc., and this reference to the Darcet's metal is *his statement* of the latest method of that day for filling teeth.

Through the kindness of Dr. William H. Trueman I have had access to all the subsequent editions of M. Taveau's book, and I find an exact repetition of this method in the second, third and fourth editions, but in the fifth edition (1843) is found the first mention of amalgam.

After naming lead, tin, gold, platinum and Darcet's metal, with its added mercury to aid fusibility, he says (page 236): "To do away with the inconvenience of all these I have used with unquestionable advantage during seven or eight years a paste which I call 'silver paste' the composition of which I have already given to many of my brethren."

A few lines further on he says: "This paste is prepared with pure silver (*l'argent vierge*) and mercury. To make it the silver is powdered very fine and very clean (*bien epuré*); a quantity of mercury is given and these are worked together sufficiently to make perfect incorporation of them. Afterwards the mixture is pressed strongly in prepared kid skin (*une peau de chevreau depourveau de son epiderme*) to extract nearly all the mercury."

He continues: "The material thus obtained is a sort

of compact paste, but it is soft enough to give easily before the pressure of the fingers."

So far all is singularly in consonance with our ideas at present; but he then states: "This preparation is used cold; the mercury evaporates simply by the heat of the mouth, and in the short space of a day the silver remains in one piece in the cavity of the tooth as firmly as though it had been cast therein, filling all the anfractuositities."

It would seem as though all along the pathway of effort, constant warnings are given of the danger of leaving the realm of *fact* and entering upon that of theory, as today, from the experience of almost three-quarters of a century we know that, practically, all of the mercury and the incorporated metals remain intact, by weight, indefinitely.

And now the latest from M. Taveau is found on page 240 of his fifth edition, giving his method in 1843.

He says: "This is the way I do now: I take the desired quantity of silver filed from a five-franc piece, which I put into nitric acid, where I leave it about 24 hours; I then take it out and let it dry. When I wish to use it I take from this the necessary quantity which I mix at this time in the hollow (*creux*) of my hand with a little pure (*pur*) mercury and I then press out the surplus, as I have already said."

It will be seen that this is merely the dissolving of the combined silver and copper of the coin, and that no further directions are given which could be practically utilized; but it seems safe to conclude that this use of nitric acid was only the preliminary to obtaining the pure silver by precipitation, and, accepting this, we have as a conclusion the inference that Taveau retained his idea of "pure silver" even though he utilized coin for obtaining it.

Having shown that M. Taveau made no claim for his use of "silver paste" prior to 1835, it will readily be conceded that *his* "silver paste" could not have been that introduced into America by the Crawcours, as their advent is supposed to antedate that period; but more than this, *his*

"silver paste" can in no wise be regarded as the "hydra" of dentistry, for it was not until several years after the Crawcour episode that the use of amalgam had attained any such serious proportions as to warrant any such appellation; and even before this the material had come to be universally *made from coin filings*, so that again we must rule out the "pure silver" paste of Taveau.

On page 219 of "American Text-Book of Operative Dentistry" it is stated: "The first dental amalgam was that of Taveau." So far as I have been able to learn there is not only no evidence of this, but every indication obtained points to the contrary.

In the dental treatise issued by J. L. Murphy, London, 1837, kindly loaned me by Dr. W. H. Trueman, on page 104 he says: "In cases where a large cavity is excavated and gold will not suit, as a succedaneum other material must be had; something in the shape of a paste is required. I have in cases of this kind, for many years, used an amalgam of silver, prepared in the following manner, and though there are objections against it, still, until something better is laid before the public, it will be found of a highly useful nature."

Then follows the making of amalgam from silver leaf (to be had in books), silver filings and quicksilver, closing with the statement: "Here, then, we are in possession of a cement which may be used in a soft, cold state; yet, on being placed in the tooth, speedily hardens in the cavity."

As his book antedates M. Taveau's fifth edition by six years, and he claims to have then been using amalgam "for many years," it can hardly be correct to state that Taveau's was "the first;" while it is not without interest to remember the cautious words of Mr. Murphy after all these sixty years (!): "THOUGH THERE ARE OBJECTIONS AGAINST IT, STILL, UNTIL SOMETHING BETTER IS LAID BEFORE THE PUBLIC, IT WILL BE FOUND OF A HIGHLY USEFUL NATURE."

Selections.

SOME REFLEX DISORDERS OF DENTAL ORIGIN.

BY HENRY H. BURCHARD, M.D., D.D.S., PHILADELPHIA.

[Read before the American Academy of Dental Science, February 2, 1898.]

REFLEX disorders of dental origin cover a wide field in both sensory and motor disturbances throughout the body, varying in latitude from pain referred from one tooth to a neighboring tooth, to referred pain in a limb terminal, from slight twitching of near muscles, to pronounced epileptiform seizures or paralysis. It is impossible in the limits of a small essay to consider all of the manifestations of nervous disturbance having their origin in dental diseases; nor, indeed, is it advisable to do so, as many of the cases are but rare clinical curiosities. There are, however, features of some degree of constancy which have occupied the attention of nearly every dental practitioner. These are the reflex disturbances arising from diseases of the pulp. Many of the cases of reflex disorders recorded in literature are difficult of classification, because reported by the medical practitioner, who, so far as I have been able to determine, has never differentiated diseases of the pulp from those of the pericementum. Reflex pains do occur in connection with diseases of the pericementum, but by far the greatest number of cases are found associated with diseases of the pulp. The reason for this is fully and clearly set forth by Dr. Black in Volume I of "The American System of Dentistry."

The pulp in its normal condition does not possess the tactile sense, and, like similar organs, refers irritation to which it is subjected to some other point.

Such organs, however, do exhibit some degree of constancy as to the point of reference. For example, as pointed out by Black, affections of the iris have an almost constant point of reference to the brow, those of the hip-joint to the inside of the knee, and so on.

This same constancy is observed in connection with the

vast majority of acute pulp-diseases; the pain being rarely localized in the affected tooth (except in cases of acute and ethenic pulpitis), is referred to some point or points of the corresponding nerve-trunk of the same side, the general rule being that the affections of the pulps of the lower teeth have pain reflected to some point of the course of the inferior maxillary nerve, frequently in the auriculo-temporal branch. Pulp-diseases of the upper teeth are most commonly attended by pain in some point of the superior maxillary nerve.

In connection with either, pain may be referred to the first branch of the fifth nerve; this latter reflection is to be regarded as the first of the remote references.

The next reference is to the ear, where not only sensory disturbances may be noted, but also those of special sense. Next in point of frequency are affections of the eye. While many of these are clearly traceable to reflex disturbance of the ciliary ganglion, there are others in which the second cranial nerve is involved. That is to say, while pain is usually confined to the ramifications of the fifth nerve, it may be referred to other nerves whose function is then disturbed; to the second, resulting in functional diseases of the retina; to the third, fourth, sixth and seventh, in which cases motor disturbances of the muscles about the eye and head are noted; to the eighth, producing disorders of hearing; to the ninth and tenth, when disorders of the tongue, pharynx, larynx, and other parts may be noted, as recorded in dental literature.*

The spinal nerves may be affected, resulting in painful diseases of distant parts,—the uterus, a thumb, or even a toe. In addition to these should be mentioned the functional disorders of the cerebrum itself, cases of which have been recorded.

To generalize: The acute affections of the pulp are those in which wide reflex disorders are rare. In the chronic diseases, notably in connection with chronic degenerative changes, reflex disorders are common; and *vice versa* in diagnosis; localized pains about the jaws point to the more

*Brubaker, American System of Dentistry, Vol. III.; Lauder Brunton, Proceedings of the Odontological Society of Great Britain, 1880.

acute diseases of the pulp; distant pains arouse suspicion of chronic diseases of the organ.

The dental diseases to which such pains are traceable may, for convenience, be grouped under four heads:—1. Reflex disorders due to the irritation of the hypersensitivity of dentine. 2. Those associated with acute pulp-diseases. 3. Those arising during the progress of chronic pulp-diseases. 4. Reflex disorders due to diseases of the pericementum.

While it is certain that almost any of these dental causes may be associated with almost any extent of nervous transference, it is extremely probable that pains may be and often are ascribed to a dental source when their true origin lies in other organs. The teeth may be the seat as well as the source of reflex pains. This is notably true in patients who suffer from chronic malarial poisoning, from gout, and in some cases from secondary syphilis. In the gout cases, however, it is more than probable that pathological conditions exist in and about the teeth to which general dental pains are due.

The test of a dental origin of a distant pain should be: Does the pain disappear promptly upon the correction of the dental disease without any other treatment? The vast majority of localized pains about the head and face are due to diseases of the eyes and teeth. Those of the eyes are most frequently located in the first division of the fifth nerve, and, as stated, those of the teeth in the second and third branches. These rules are open to many exceptions, but serve as directing signs in the location of the causes of facial and cranial pains.

REFLEX DISORDERS DUE TO EXPOSED DENTINE.

As a general proposition, it may be stated that reflex disorders due to the irritation of hypersensitive dentine are most frequently associated with its peripheral exposure; furthermore, the most common situations of the points of irritation are upon the necks of the teeth, where a limited amount of cementum has become exposed and removed, laying bare the dentine. This rule is also open to wide exceptions, but is a useful guide. Other situations which should

be mentioned are upon abraded surfaces of teeth and in superficial cavities. As in all dental disorders, the extent of the reflexes is governed by peculiarities of the individual, being most pronounced and remote in individuals who present a neuralgic dyscrasia. In the ordinary individual such a condition as a neck-exposure of dentine may give rise to indefinitely locating pains about the lips or jaws, in the neuralgic dentine; exposure at the neck of one tooth may be the cause of severe trigeminal neuralgia, with painful spots at the points of nerve emergence, the supraorbital, infraorbital, and mental foramina; severe pain in the eye or in the ear. Cases are recorded when typical neuralgic sore areas have existed and resisted general medication, and been found due to exposed dentine at the neck of a tooth. This exposure may be upon any tooth; more than once it has been located upon the disto-cervical portion of a third molar.

In some of these cases deliberate irritation of the exposed dentine may cause a reflex paroxysm, but, unfortunately for purposes of immediate diagnosis, it more frequently happens that the pain induced is local. However, a casual relationship is made clear when it is noted that the reflex pain disappears soon after a thorough cauterization of the exposed dentine.

A diagnostic sign of the condition is the recurrence of pain upon taking faintly acid or intensely sweet substances into the mouth.

ACUTE DISEASES OF THE PULP.

While it is true that severe and wide reflex pains may be caused by acute hyperæmia and attacks of acute inflammation of the dental pulp, it is rare in these affections that symptoms directly referred to the maxillary region are absent.

In the first-named disorder the taking of cold water in the mouth is almost immediately followed by a paroxysm of pain, usually definitely located in the region of the posterior, middle, or anterior dental nerves. In acute pulpitis the pains are also directly referred to the maxillary region, although a defined sore spot may present as a reflex at some

portion of the face or scalp, in which event the existence of a dental disease may not be even suspected.

It is in connection with repeated venous congestion of the pulp, its chronic inflammation, suppurative and non-suppurative, and still more frequently with the formation of defined calcific masses in the pulp-tissues, that wide reflex disorders are most frequently found.

All of these conditions present one common feature which differentiates them in symptomatology from the acute affections of the pulp,—i. e., a lessening instead of an exaltation of the special temperature sense of the pulp. Black has remarked this in his contributions to the "American System of Dentistry," and it will be found almost constant. The reaction develops a special peculiarity, notably in the later stages of some of these degenerations, and that is a lessening of response to cold application and an increasing response to heat.

The nature and time of response to heat affords a valuable diagnostic sign as to the pathological condition of the pulp. It is most marked in abscess of the pulp, less so in venous hyperæmia, and much delayed in extensive calcifications in the pulp substance. These distinctions may be carried to still further differentiations, but are beyond the scope of the present paper.

The vast majority of the common neuralgias, with defined painful areas about the head, are due to one of these dental disorders. Pain in front of the ear, in the ear, pain over or in the eye, with a disposition to press upon the eyeball, tender spots in the occipital region, or in most of the cases of pain at the points of nerve-emergence, all point to a reflex disorder having a dental origin.

In nearly all of these cases pain is unilateral. Should it be found upon both sides of the head, it leads to the suspicion of teeth on the other side being affected, or to the existence of some optical defect, notably uncorrected astigmatism, hyperopia, or myopia.

Much confusion may arise through the existence of both dental disorders and optical defects, so that the general injunction of the ophthalmologist to patients, "Have your

teeth examined," is reciprocal. The dentist should advise in neuralgic cases, "Have your eyes examined," but should correct or remove all dental disorders to which reflex neuralgias are attributable.

Reflex cranial and other neuralgias are also associated with diseases of the pericementum; the classes of pericemental affections giving rise to them are both septic and non-septic. As with pulp-diseases, reflex neuralgias are most commonly due to chronic rather than acute pericemental diseases. Of the non-septic cases, a hypertrophy of cementum has been found a frequent cause of some of the most remote cases of reflex neuralgia recorded in medical and dental literature.

As with nodular deposits in the pulp, these growths exist frequently, and give rise to no symptoms whatever; presumably, the reason for reflex irritation when it appears is the pressure of the hypertrophic growth upon nerve fibres. Many of these cases are not diagnosed except by a long and tedious process of exclusion, there being frequently no local symptoms which would point to the existence of the dental condition. At the present day, suspected cases would, of course, be unveiled through a radiograph.

Many reflex neuralgias are directly traceable to the existence of septic conditions about the roots of teeth, the proof of the casual association being brought to light by the disappearance of the reflex disturbance when the septic condition about the root is remedied or the tooth is extracted. Indeed, it is extremely probable that a large class of ill-defined disorders might be traced to this source, the lack of continuity and clearness of histories, dental and otherwise, obscuring the connection between dental and other diseases.

This subject might be expanded into a large monograph, even more extensive than Brubaker's admirable contribution to the "American System of Dentistry." Enough, however, has been said to emphasize the direct and indirect importance of dental health and to furnish material for an evening's discussion.—[International Dental Journal.

PORCELAIN INLAYS.

BY S. H. GUILFORD, D.D.S., PH.D., PHILADELPHIA.

THE latest methods of making porcelain inlays, and undoubtedly the best and most promising one yet devised, is that of Dr. N. S. Jenkins, of Dresden, Saxony. It resembles previous methods in that it consists in making a metal matrix of the cavity and into this fusing a porcelain body of proper shade and consistency; but it differs considerably from any other in many of its details.

Dr. Jenkins was led to experiment in the making of inlays by the desire of his patients to avoid the conspicuousness of gold, and by his failure to obtain satisfactory results by the methods previously employed. His experiments extended through several years, but in the end his efforts were crowned with success.

In making the matrix he used gold foil No. 30, having found that platinum lacked the same degree of adaptability that gold possessed, and he also found that gold heavier than No. 30 did not yield as good results.

In the matter of porcelain body he noticed that the low-fusing bodies previously used were lacking in life-like color and strength. Through experiment, and by consultation with those familiar with the making of porcelain ware, he at last hit upon a combination of ingredients which gave him the desired texture and appearance, and also fused at a considerable lower heat than gold. In addition to this his combination was subject to less shrinkage in cooling than any bodies previously used.

These combined improvements enabled him to prepare an inlay of any desired shade, and one that would so closely fit the cavity as to make it almost indistinguishable from the tooth in which it is placed.

For the fusing of the porcelain body, Dr. Jenkins has devised an oven, heated by a jet of gas and air.

The furnace is shaped like a muffle, about 3 x 3 x 5 inches, is made of Russia iron, and lined with asbestos cloth. The jet of gas and air is supplied by means of an ordinary gas blowpipe, such as is used in the laboratory for soldering, and the air pressure is obtained from a foot-bellows. The

furnace is supported on feet, and in its base is a hole, of an inch or less in diameter, through which the jet from the blowpipe enters.

In making the gold matrix, the piece of foil is pressed to the shape of the cavity with cotton or spunk, held in a pair of blunt tweezers, and the margins of the cavity sharply outlined in the gold by burnishing it over the edges.

For holding the matrix during the baking, a platinum spoon is used, having a long handle and a hemispherical bowl about seven-eighths of an inch in diameter. In this is placed fine asbestos, mixed with water, and the matrix gently imbedded in it. Heating over a gas flame dries out the moisture, and the matrix is then ready for the porcelain.

Instead of mixing his body with water, as has heretofore been customary, Dr. Jenkins uses alcohol, on account of its more ready evaporation. Moistening the porcelain powder with alcohol on a glass slab, it is placed in the matrix and gently dried over a flame. The platinum spoon, with its matrix and body, is now inserted into the open mouth of the muffle and the flame applied by the blowpipe. In a few minutes the porcelain is fused and allowed to cool. More porcelein is now added and the operation repeated.

In order to secure thorough fusing and make up for shrinkage, the porcelain is added and baked in two or three portions.

When completed, the foil matrix is stripped from the inlay and the latter inserted in the cavity to see that all is satisfactory. Before placing the inlay permanently the cavity will have to be enlarged inwardly, or roughened with a bur, and the inlay may also require to have a groove cut into its under portion with a delicate corundum-wheel. If it has not been done previously, the rubber-dam should next be applied and the cavity thoroughly dried. Zinc phosphate of a light color is now mixed to a creamy consistency, some of it applied to the margins of the cavity and some to the under side of the inlay, and the latter quickly pressed into position. Pressure upon the inlay, to force it home and expel any excess of cement, can best be exerted with a piece of orange-wood.

After the cement has hardened and any surplus removed from the margins, the case is complete.

Dr. Jenkins has prepared his porcelain in a dozen or two different shades, so that with these, or a combination of any two of them, any desired shade can be obtained. A large amount of skill and experience is necessary in order to obtain just the shade desired, and much practice is required to secure a thoroughly correct matrix. The foil must not move while it is being adapted to the cavity, and in removing it great care needs to be exercised not to change its form. So, also, in placing and imbedding the matrix in the asbestos in the platinum spoon, delicate manipulation is absolutely necessary.

Again practice alone can impart the skill and good judgment necessary in placing the proper amount of body in the matrix, so that, when fused, the inlay will entirely fill, but not more than fill, the matrix. If too much body be placed in the matrix, the inlay will overlap the margins and prove a failure; whereas, if too little is used, the inlay will not entirely fill the cavity.

Dr. Jenkins thinks that his furnace should in all cases be used, in order to secure satisfactory results; but there seems to be no good reason why a Downie or Land furnace, or a Custer electric oven should not be employed with equally good results. The Jenkins furnace may be used anywhere that a gas supply can be obtained, and this fact will make it more generally useful to practitioners who cannot obtain the electric current. It also does its work very quickly, for with it the porcelain body can be fused in a few minutes. Fusing in an electric oven will take longer, which would prove an objection where it is desired to make and set the inlay at one sitting.

The zinc cement with which the inlay is secured in the cavity is, of course, perishable; but where there is a close adaptation of the inlay to the cavity, the line of cement exposed will be very fine, and, if dissolved out in time, can easily be replaced without removing the inlay.

Inlay work is most called for in the anterior teeth, especially upon their labial and approximal surfaces. Farther back in the mouth it would possess no special advantage

over the metals now generally employed. For the restoration of corners of teeth an inlay can hardly be made strong enough in its anchorage to resist the strain of mastication, unless the tooth be pulpless so that the cavity can be greatly enlarged inwardly.

The making and setting of an inlay will generally consume more time than the insertion of a gold filling, but experience will bring with it rapidity of manipulation as in all other processes.—[The Stomatologist.

GOMPHIASIS.

BY W. SANFORD COTTRILL, WORCESTER, ENGLAND.

It is not my object in this short paper to introduce a new disease, or to suggest a treatment of a disease, but to introduce a technical name to the profession. Perhaps it would be more correct to say revive a name. If a certain disease possess a proper scientific name, why in these enlightened days, should it not be called by that name? Gomphiasis (derived from the Greek) is the correct form of speaking of the disease of the teeth when they loosen in their sockets, and, unless treated, finally fall out. Now this is what we frequently meet with in practice. I have read many dental books on the causes and treatment of such cases, but never have I yet come across the term "gomphiasis" as applied to it. Further, I have asked several dental and medical practitioners if they knew what the term meant, and they have all replied in the negative.

Now what is my authority for stating that gomphiasis is a medical term?

I refer the interrogator to a really good dictionary, such as "Webster," for there he will see:

Gomphosis, "the immovable articulation of the teeth with the jawbone," and again *Gomphiasis* "a disease of the teeth, when they loosen and fall out."

This I consider fair proof that gomphiasis is a proper scientific dental term, and again I ask why it is not classed in our text-books with necrosis, exostosis, and other diseases?—[Dental Cosmos.

Reports of Society Meetings.

CALIFORNIA STATE DENTAL ASSOCIATION.

DISCUSSION OF CLINICS.

DR. R. H. COOL.—Exhibit of Natural Inlay.

Chairman Van Orden.—Last evening at the close of the session Dr. Cool exhibited a natural inlay in a left upper central incisor. It was a beautiful piece of work. I will call on Dr. Cool to describe the method of insertion.

Dr. R. H. Cool.—Mr. Chairman, it was the insertion of a natural inlay, a section of a natural tooth, ground and fitted closely, using a pigment in the operation and a small gold screw inserted horizontally into the tooth, the open end of which fitted into the inlay. It is very firm and secure. This kind of work I feel satisfied is as strong as a gold filling in the same position. If there are any questions you would like to ask I will answer them.

Chairman Van Orden.—I would ask about the placing of the screw into the tooth. Was it placed crosswise?

Dr. Cool.—Yes; horizontally. The cavity was formed similar to one you would form for a filling. The use of the cement alone would be very apt to hold the inlay in its place, but with the cavity shaped as you would for filling, the inlay shaped properly and the gold screw run horizontally into it, and the two brought together and united with cement it is very firm.

Dr. Platt.—Is the screw fastened to the inlay?

Dr. Cool.—The screw is first set into the tooth, then fastened into the inlay with cement that is used to hold it in place after the screw is set. The end of it is inserted in this way [drawing on blackboard]. The screw is set in the tooth in this manner, horizontally, and the inlay is ground so as to fit. The pulp in that tooth is alive. In this particular case the screw was set in a cavity which had been used for the retaining point of a gold filling. The lower margin of this is cut as if for a cavity, inclined towards the pulp, so that the cement makes a solid mass.

Chairman Van Orden.—Will Dr. Cool describe the pigment?

Dr. Cool.—I sometimes use rouge, formalin, with glycerine or oil.

Dr. Barker.—I would like to ask if he cuts that inlay so that it is a close fit to the cavity?

Dr. Cool.—Yes, as much as possible. I don't depend upon the pigment until the latter part of the operation; I depend upon my eye and touch. As I gradually near the finish I use the pigment; also use a large magnifying glass. The better magnifying glass you have the better joint you will be apt to make. Instead of using the small glass that is generally furnished to dentists I think the glasses they use for the examination of pictures and etchings are preferable.

Chairman Van Orden.—Will someone advance some point in regard to the preference of a natural inlay over the artificial porcelain inlay?

Dr. Cool.—The natural inlay of course is much more natural in appearance. In all cases of natural inlays or implanted teeth the part inserted will take on the color of the adjoining teeth or the adjoining part. That is a peculiarity in implanted teeth; but you must use a tooth or section of tooth of the same temperament as that upon which you are working. For instance, if a tooth is of a bilious temperament or a nervous temperament, you want to use one of that temperament, not take the tooth of a bilious temperament for an operation upon the tooth of a nervous temperament. The teeth of the nervous temperament are of a bluish color; the bilious temperament of a yellowish color. With that care you can match a tooth almost perfectly. Last night there were a number who examined that tooth who could not tell whether the inlay was in the right or left central incisor.

Dr. Goddard.—Mr. Chairman, I would ask Dr. Cool how long he has known natural inlays of this kind to last?

Dr. Cool.—I know one case that was put in fourteen years ago, and I remember an elderly San Francisco lady that has in her mouth now natural inlays that were inserted in Boston so many years ago that she has forgotten. She

will have nothing else in her mouth but natural inlays, and is one that never considers expense in an operation of this kind. She does not want fillings, but always calls for natural inlays. Those inlays placed by the Boston dentist are doing good service. The one I spoke of to my knowledge was placed in fourteen years ago. My own experience personally has been some five or six years. The majority of natural inlays have given me perfect satisfaction, much more so than porcelain inlays. In fact, unless I can anchor the porcelain inlay in the pulp-canal in a case of this kind I would prefer to have the natural inlays. Porcelain inlays always look more or less artificial. It is a little off the subject, but in making artificial inlays we use one color, whereas in a natural tooth there are a number of different shades. That is, I think, the reason that artificial teeth don't have as natural an appearance as they should. They have two, sometimes three shades. Natural teeth, if examined very closely, you will find to have from three to half a dozen or more shades, and the general effect is such that you cannot match them with porcelain.

Dr. Pague.—I would ask Dr. Cool: In selecting a tooth, a natural tooth, to get an inlay from, would you be governed more by the color or by adaptation to the tooth in point?

Dr. Cool.—You will have to take both points into consideration.

Dr. Pague.—The color would not signify as much to you as the shape and condition of the tooth that you were going to put the inlay in?

Dr. Cool.—I would have the general effect in mind. It would facilitate matters a great deal if we could remove a section of the tooth as I did here, that part that is lost. If I could not get that section I might take a portion of some other part of the tooth. I would prefer to take it from that corner, bearing in mind at the same time the color that I want, because of its general effect. If you place a yellow tooth upon a blue tooth it will not take the color; it will always be yellow.

Dr. Pague.—That is the point I wished to bring out.

Dr. Lundborg.—May I ask Dr. Cool what gold he has used for the screw?

Dr. Cool.—20-k. gold.

Dr. Lundborg.—Well, I had the opportunity of seeing the tooth, the inlay; it is very excellent. I was afraid that the color of the gold might possibly have been affected by the cement or the pigment that he uses in putting in that corner—that inlay. I think that to be sure there will be no trouble afterwards in inlays, platinum would be better. You could be more sure that there could be no possible discoloration afterwards.

Dr. Cool.—I am glad Dr. Lundborg brought up that point. I inserted the screw in this case with Harvard cement, and the enamel was very thin, so that the cement, not being white, shows the least discoloration; no, not discoloration, it was simply the effect upon the tooth where the enamel was thin that you will notice. There is no danger of the gold screw showing dark through a tooth. It would be very apt to show yellow. But you must be very careful with the cement that you use. I used the Harvard cement to set the screw, and seeing that it was too dark I then used the plomb, which was white, to set the inlay. It takes longer to set. As to the point which you make about platinum: platinum would show dark, would give a blue cast through the thin enamel; therefore, I prefer gold. If it showed at all, the gold would be apt to show yellow. On the same principle that, in backing artificial teeth, if we want a yellow surface we use gold, and if we want a bluish tint we use platinum.

Dr. Goddard.—We sometimes learn something from our failures. I asked Dr. Cool a question as to the durability of this operation because I had in mind a case in practice which was not satisfactory to me. A child of about 11 years old broke off a central incisor—broke off about the lower quarter. It was a clean fracture, and the piece was brought to me in good condition. I thought I would try to attach it. I made a slot in the remaining portion of the tooth, shaped it in this manner [illustrating]. The slot would be represented by this dotted line, deepening on each side of the pulp so as not to injure the pulp, the pulp not being exposed. In the remaining portion I cut another slot. I then took a piece of gold and cut it out about that shape, so that these two projections on the end should enter

these holes drilled on this side of the pulp, and this portion would enter that which had broken off. I cemented this piece of gold in place and cemented the broken piece in place. The match was perfect of course, because I had only this broken surface. It seemed to make a much better joint than I could possibly make by grinding. I expected from it great success. I seemed to get the piece perfectly replaced. But in the course of two or three years or less decay took place at the point of union to such an extent that the broken piece crumbled away. I regarded it practically as a failure. I was very much pleased with it at first. So the question arose in my mind, how durable are these natural inlays? It may make a difference what cement is used, but I used a cement which has been very satisfactory to me for temporary fillings, and I know of no other which would have done better. In that case there seemed to be a lack of durability.

Dr. Barker.—I had a case very similar to this Dr. Goddard has spoken about, only it was an adult, and the break was somewhat oblique rather than horizontal. This was cemented in place about five years ago. It is in perfect condition today. The failure Dr. Goddard refers to might have been on account of the patient being a young person.

The Chairman.—Dr. S. E. Knowles gave a clinic, selecting the right upper first bicuspid, a mesio-occlusal compound cavity, in which he inserted a gold filling, using his own matrix and plugger points. We will call upon Dr. Knowles.

DR. S. E. KNOWLES.—Demonstrating Use of His Own Plugger Points.

Dr. S. E. Knowles.—In demonstrating the use of the plugger points I had expected to perform the work upon a dummy. I did not desire to give a clinic. I designed only to bring out the utility of the two features, and thought it best to be done out of the mouth, because in that case we could stop from time to time and examine at close range. It would have been, in my opinion, a better demonstration. I, however, was over-persuaded, finally overruled, and consented to do the work in the mouth. I hardly think many of the members had a fair opportunity to see what was going on. The operation was very protracted, nearly three hours. I had only half of the implements here [that I am

accustomed to, and I felt that I was working under very adverse conditions. The filling at present is in rough form. I am sure very few have had an opportunity to examine the border line at the time the matrix was taken off or in its present condition. Without having done so no one could form an idea of the comparative merits of the filling points ~~and matrices~~. I regret that I did not adhere to my original intention and have a tooth out of the mouth. It might have been passed from hand to hand. I think the demonstration would have been much more instructive and the opportunities for inspection and appraisal increased to a very great extent. The matrix was not exactly what I should have liked in the way of a fit. It ought to have been a little smaller. I undertook to rectify that by cutting the lip with scissors and succeeded only fairly well. During the operation it was suggested to me that there might be a great deal of difficulty in getting the matrix in place at the cervical wall and holding it there. It is a very simple thing to bring this about by placing an additional ligature around the tooth and matrix in position and tying it tight. However, silk is not quite as reliable as the wedge. During the course of the filling those who had an opportunity to observe the work while it was in progress could see the strongest point to which I referred in the paper that was read this morning.

Dr. Platt.—I do not believe there is any better way to fill approximal cavities in bicuspid or molars with gold than the method Dr. Knowles demonstrated this afternoon. The results are excellent. I have seen some work Dr. Knowles did quite a long time ago. It was very fine indeed.

Dr. L. Van Orden.—It seems to me that one of the most important subjects which the dentist today has to consider is the management of compound approximal cavities in the masticating teeth, the bicuspid and molars. I think there are many points of importance and value in the clinic and I would under different circumstances gladly try to say something about them. The matrix is still, to my mind, almost an unknown quantity. Although the idea of a full matrix is a very valuable one, I am inclined very largely to stop with what I would call the cervical matrix, that is to

say, one a sixteenth or an eighth of an inch in depth. I don't feel that I am yet settled as to my permanent method, but I am inclined to stop with that. I also consider that the future will bring forth, perhaps, the proposition of contour matrices. I think that the point in regard to matrix work and contour work will be the curving of the contour from the gum line. (I ought to use a blackboard.) The contour from as near the gingival joint as possible. The gum more readily adapts itself to a rounded surface than it does to a flat one. I can only say again that I do not feel equal to discussing the point in a detailed way; but the clinic I think should be marked as illustrating one of the most important subjects we have to deal with, namely, the treatment of approximo-occlusal cavities and the protection of the interproximate tissues.

DR. A. F. MERRIMAN JR.—Gold Building, Using Various Mallets.

Dr. A. F. Merriman Jr.—I tried to demonstrate one of the various methods of gold filling. Although it was at a clinic, I think I had about as favorable an opportunity as we ever have at a clinic. Everything was nicely arranged for it; good light and everything necessary. Of course I did not try to hurry. The result of my work you can inspect. There is no special point that I want to bring out other than the carrying of the gold well under the walls with these oval points, and the demonstration of the use of the different mallets, each in its own place. You observe that at the margin I was very careful to use my hand mallet delicately. I believe that there are more operations that fail through the carelessness of the operator at these points than any other. If you watched my work you saw that I was very careful at this one point, around the edge, to carry the gold very carefully there before I began to use the electric mallet. Then I changed to the heavy blows after the margin was thoroughly protected.

Dr. Platt.—In discussing Dr. Merriman's clinic, I think there are two or three points that merit our special attention. Anyone who has ever seen Dr. Merriman work knows that his work is very carefully, neatly and thoroughly done. I don't know of a more conscientious, careful operator than Dr. Merriman; I am not standing here to pay

him any undeserved compliments either. The idea of the use of several different kinds of pluggers is a good one, although the filling in this case did not demand it. It might have been filled by any plugger that is known to the profession. But I maintain that a man who can use two or three pluggers of different kinds in filling a cavity benefits himself and benefits his patient. The change from one style of operation to another is a rest. It rests the patient and it rests the operator, and it is a development in the line of higher manipulative ability than simply the use of any one instrument can possibly be. All these pluggers are good in their place, but I don't think any one of them is good to use alone in every case. The man who can change from one to the other—from hand-mallet to the automatic, or to the electric—distracts the attention of the patient a little perhaps, by the use of first one and then the other; it gives them a change and it develops the manipulative ability of the operator. That point I think is especially good. The care with which the cavity was prepared was another point. Too many of us are careless in the preparation of cavities. A good filling will fail in a poorly prepared cavity, when a poor filling will often do pretty good service in a well-prepared cavity. I think the preparation of the cavity is the most important item in manipulative procedure. I think all who saw the work will commend it. I don't believe the patient will ever have any better gold filling put in her teeth than Dr. Merriman put in today.

DR. A. C. HART.—Making Root-Canal Filling Material, etc.—Exhibit of the Use of the Microscope.

Chairman Van Orden.—There are four main points made by Dr. Hart in his clinics and exhibits which many of you have had the pleasure of attending. The first point was the making of root-canal filling material, four parts Canada balsam and one part salol, heating the balsam first.

The second point was the adding of pyroform to cement fillings, pyroform being practically formaldehyde in a solid form.

The third point was the application of the rubber-dam and the treatment of the tooth surfaces with formalin. The application of the dam was preceded by the use of

three-per-cent. pyrozone about the teeth and gums to prevent the crowding of bacteria into the soft tissue which would produce irritation.

The fourth point was an exhibit with a number of microscopes. The especial slide of interest was a section of the cementum from the apex of a tooth demonstrating bone lacunæ and canaliculi and suggesting their liability to infection in alveolar abscess.

Dr. Hart.—Dr. Van Orden has covered the ground nicely. I have found pyroform an excellent adjunct to cement fillings. I have used the five-per-cent. formaldehyde. The effect of formaldehyde upon the teeth in the hardening of the dentine and enamel against decay struck me as being an excellent addition to this, inasmuch as objections are constantly being raised against the common cements, phosphates of zinc, that they become porous and of course very foul smelling.

A Member.—I would like to ask Dr. Hart if he has ever found that pyroform incorporated with cement causes any irritation of the pulp?

Dr. Hart.—I have not found it as yet. My experience with pyroform so far has been very fortunate; I have never noticed any bad effects.

Chairman Van Orden.—I take this opportunity, in recurring to the matter of the clinics of the afternoon, one of which was left for discussion, to speak of a matter which if put in the form of a formal resolution, as is often done at the close of the meeting, would not be satisfactory to me as chairman of the Clinic Committee, and I do not think would be satisfactory to the convention. I refer to the preparation made by the local members, both of the Clinic Committee and the Committee on Arrangements, more especially to thank one, whom I think should be called the other chairman of the Clinic Committee, Dr. A. M. Barker of San Jose. [Applause]. I think none have failed to notice that the clinical facilities have been on a larger scale and more considerate than any we have ever had, and the chairman of the committee wishes to express his deep appreciation of these efforts and his impression of the great amount of labor that has been performed by the members, both of the

Arrangements Committee and Dr. Barker, the member of the Clinic Committee upon whom practically devolved the labor of preparing these clinics. A resumé of the work shows it has been the largest clinical afternoon we have ever had. Clinics by Drs. Boeseke, S. E. Knowles, H. B. Copsey, Mories, Cool, A. N. Copsey of San Francisco, Platt, Merriman and Hart were performed. All of these clinics have been discussed. Those who were present I am sure need not be reminded that they were satisfactory. There is one clinic remaining to be referred to, that is the clinic or rather the exhibit of Dr. Cool of an implantation of a tooth, which has served to permit the insertion of a piece of bridge-work in a case which otherwise would not have been available for that purpose, the mouth being edentulous on the left side beyond the cuspid. Last September, at Portland, Oregon, at a clinic given before the Oregon Dental Association he implanted a molar tooth. As it appears now, no one would ever suspect its having been placed there artificially.

Dr. Metcalf (in the chair).—I will call upon Dr. Lewis to open the discussion of the exhibit of Dr. Cool with reference to the implantation of a tooth which supports one end of a bridge.

Dr. R. H. Cool.—Exhibit of Implantation.

Dr. W. F. Lewis.—The work speaks for itself. I was fortunate in seeing the implantation made last fall. I confess I never have seen a more successful implantation. I was a little skeptical at the time, but the results have certainly warranted what was done. The fact that the implanted tooth served for a pier to sustain the bridge makes it seem to me of inestimable value to the patient. It certainly opens up a larger field in prosthesis, because without such an operation as that it would be impossible to put a bridge in such a mouth. I was just a little bit skeptical as to the duration of the tooth when he placed it there—whether it would bear the burden of the bridge; but I feel sanguine of the permanency of the whole work. It is certainly very admirable.

Dr. Goddard.—I can only repeat what Dr. Lewis has said. I was present when the clinic was given in Portland,

Oregon, and, like Dr. Lewis, was a little skeptical, because I thought the root was rather small and conical for an implanted tooth. I was agreeably surprised today to find the tooth perfectly firm in place and apparently making an excellent pier for the bridge. I would like to see it five years from now.

Dr. Cool.—I have little to say, except that my intention has been to do this work before the dentists of the Pacific Coast. That is the reason I took this case in particular, the implanting of the molar, before the Oregon State Dental Association. I have brought it before the California State Dental Association. I have just inserted the bridge, some ten months after, and it is not yet cemented. I intend to take the same case before the Congress that meets in Portland next August and exhibit it there, and probably take the case to Omaha. I am doing this for the reason that implanting originated on the Pacific Coast. It is our duty to the State, if possible, to continue the investigation that has been made and pursued by the originator of this work. This case is now on record before two State organizations. Every year, if the patient remains upon the Pacific Coast, we can know the condition of the mouth. If it is a failure you will know it, and you will know why, for the gentleman has promised me that I may have his skull should he die, and you can hold an autopsy.

STOMATOLOGICAL CLUB OF CALIFORNIA.

MEETING OF TUESDAY, SEPTEMBER 13, 1898.—EVENING SESSION.

DISCUSSION—DR. YOUNGER'S EXHIBIT.

Clinic on Replantation.

Dr. Younger.—In the case presented this afternoon there were two teeth elongated, this condition having been present for two years, and due to lack of occlusion. The alveolar process had also been carried down with the teeth, which, besides being elongated, bit inside the inferior arch. These two teeth were extracted and prepared for replantation. The sockets were deepened and so shaped that the teeth when reinserted would assume an artistic position,

not only as regards relation to other teeth, but also in supporting the angle of the mouth. The anesthetic used was a 33⅓-per-cent. solution of cocaine in Dr. Younger's menstruum.

Dr. Frank C. Pague.—I witnessed the operation this afternoon with a great deal of interest and pleasure, because it gave me an idea of how to save such teeth, which in many cases heretofore it has seemed necessary to extract. The trephines and reamers used are provided with a gauge to designate the depth of penetration, and are particularly well adapted to such operations. The teeth were held in place by silk ligatures, and the operation will undoubtedly prove successful.

Dr. C. B. Root.—In this class of operations success depends largely upon perfection of detail, and the many points of interest which Dr. Younger's ripe experience enabled him to present today were of the greatest value, inflammation operations present difficulties and dangers varying with the location. For instance, it is possible to injure the anterior palatine artery, veins and nerves when operating for the insertion of superior central incisors; or in the case of a lateral incisor it is difficult to obtain a sufficiently strong plate of bone to cover the root labially. In the case of inferior bicuspid and molars there is always danger of injuring the inferior dental artery. The precautions taken today were of such a nature as to reduce the risk of opening into the antrum (the teeth being the right superior first and second bicuspid) to a minimum. In all operations of this nature the question of securing a proper anesthetic state is a very interesting one. Some patients have an idiosyncrasy contra indicating the use of cocaine. Eucaïne could hardly be used on account of the swelling and local after-effects. By inhaling the vapor of chloroform from a wide-mouthed bottle, not until a stage of unconsciousness is reached, but only until the patient gives some slight sign of the effects of the chloroform, such as the drooping of an eyelid, a condition of anesthesia is produced permitting the almost painless excavation of sensi-

give dentine. I have used this with success in addition to cocaine in implanting teeth. I would like to ask Dr. Younger if he has had any experience in the use of cataphoresis in implantation?

Dr. Younger.—Dr. Morton and Dr. Kirk applied cataphoresis once while I was performing an implantation operation. The gum became blanched and the patient complained of a sensation of burning. It was not satisfactory, and besides the action of the current would interfere with healing.

Dr. A. F. Merriman Jr.—I did not see the clinic this afternoon, but I have in the past seen Dr. Younger perform the operation, and I believe it to be one of the most esthetic operations in dentistry. It seems to me the operation as described today was really a form of implantation rather than replantation, as deepening and shaping the socket calls for the same mechanical calculation as in implantation.

Dr. J. A. W. Lundborg.—The operation was certainly one of the most interesting in dentistry, and as it becomes common its value will be realized more and more.

Dr. Younger.—I have paid a great deal of attention to the causes of absorption of implanted teeth, and have tried to find some means to prevent it. We know that the circulation receives its primary impulse from the heart, and is assisted by the contraction of the muscular coats of the arteries and capillaries. Every muscular movement causes pressure on the veins and forces the blood onward into the heart, the valves of the veins preventing any regurgitation. All this is true of soft tissues, but not so in bone. All circulatory movement depends on the impulse from the heart. In cases of bone lesions, implantations, etc., there is a congestion, a stasis, which presents conditions favoring decomposition of the blood. Among other products of such decomposition an acid is formed which attacks the root of the implanted tooth. The multitude of minute cavities show this to be a process of erosion, and differs from the absorption of the temporary teeth; here the blood

is fresh and clean, and the absorption is physiological. Massage and intermittent pressure over an implanted tooth would have a tendency to relieve the stasis, as this would take the place of the muscular action which propels the blood in the soft tissues.

Dr. Russell H. Cool.—The Stomatological Club should feel very proud in knowing that its first president originated these implantation operations. Dr. Younger has devoted a great deal of time to research in this field, and this fact explains why each little point which goes to make success is so well noted. This is truly the work for a specialist, and a practice of ordinary routine will not allow time to develop all the minutiae. The operations were truly artistic dental surgery, and will not only improve appearance, but will also give something satisfactory for mastication. The tooth to be implanted must have the pericemental membrane present in order to obtain attachment. Dr. Younger advanced the theory of the persistent vitality of the pericemental membrane, and men who were most opposed to it now advocate the theory, and say their failures have occurred in cases where they were afraid of the condition of this membrane. The anesthetic used was a 33⅓-per-cent. solution of cocaine, and only a portion of a minim was used. By moving the nut on the piston of the syringe as small an amount as one-third of a minim may be injected. An implanted tooth should be placed gently in its alveolus. It should fit closely, but much force should not be used.

MEETING OF TUESDAY, OCTOBER 18, 1898.—EVENING SESSION.

DISCUSSION—DR. PLATT'S EXHIBITS.

For synopsis of exhibits see page 650, November GAZETTE.)

Dr. R. H. Cool.—The natural inlay exhibit was as artistic a piece of work as I ever had the pleasure of seeing, and is a credit to the operator and to the Club. I wish to say here that the cases presented today do more to give value to the Club than most anything that could be given, as the

work possessed great merit from an esthetic point of view, and were subjects of practical every day interest.

The bridge-work (exhibit *b*) I will not mention, because it has been discussed here so often.

The case of the removal of an impacted third molar (exhibit *c*) was interesting from an oral surgeon's view, and should be written up, as it deserves a place in the annals of the Club, ranking with those cases which have been of the greatest importance to us. It was a case as difficult to diagnose as any I have seen, and required a great deal of patience and skill. The after-treatment was all that could be desired. I would suggest that the packing with gauze be discontinued, and a piece of wax be used to keep the wound open until healing from the bottom is complete.

MEETING OF TUESDAY, OCTOBER 25, 1898.

CLINIC.—Dr. F. L. Platt. A case of erosion complicated with extreme hypersensitiveness of the dentine.

DISCUSSION—DR. PLATT'S CLINIC.

Dr. Platt.—The case first came to me two or three years ago presenting a condition of extreme sensitiveness near the gingival margin. An examination revealed the presence of pits and a faulty development of the enamel, which seemed to be very thin in this region. I prescribed milk of magnesia, glyco-thymoline and chalk at different times. Last spring the patient came to me again, the teeth being more sensitive than ever, and some of the pits having developed into small cavities. At different sittings I made thorough application of 40-per-cent. formalin, which gave a good deal of relief. While in the country this summer the patient had the pits filled with cement, but evidently they were not excavated.

Dr. Lundborg.—I have treated similar cases with zinc chloride with perfect success.

Dr. Merriman Jr.—Great care should be taken to prevent the zinc chloride from coming in contact with the gums, as it is an active escharotic, and might injure them.

Dr. Lundborg.—I was careful not to let an excess of the

medicine reach the gums, although there was some action on them. As the gums were much congested I considered this an advantage. I would fill the pits with gold if they were too small for inlays and not too conspicuous.

Dr. Merriman, Jr.—The case today was not true erosion, but resulted from a defective development of the enamel. I would use rubber-dam in applying the chloride of zinc, I think it is better than nitrate of silver.

STOMATOLOGICAL CLUB OFFICIALS.

At the annual meeting of the Stomatological Club of California, held Tuesday, November 29, 1898, the following were elected officers for the ensuing year:

President	Russell H. Cool.
Vice-President.....	J. A. W. Lundborg.
Secretary.....	Frank C. Pague.
Treasurer.....	Frank L. Platt.
Clinic Committee.....	A. F. Merriman, (Chairman)
	Thos. Morfiew, S. L. Strickland.

SAN FRANCISCO DENTAL ASSOCIATION.

At the regular November meeting Dr. F. L. Platt presented the following clinics:

a. Wafering amalgam. Showing the advantage of starting the filling with a very soft mass of amalgam, pressing it into every part of the cavity, and gradually hardening the whole filling by wiping off the excess of mercury and adding pieces of amalgam from which as much mercury as possible had been pressed, thus making a filling hard enough to withstand the force of mastication by the time it is completed.

b. The use of small napkins $2\frac{1}{2}$ inches wide by 16 inches long.

c. Method of setting Logan crown, using an intra-dental band to strengthen the root. The root being ground down as usual, and the canal opened sufficiently to admit the pin of a suitable Logan crown, a groove is cut around

the opening of the canal with a trephine or small fissure bur. Into this groove a band of gold is fitted and soldered to a disc of 30-gauge pure gold, shaped so as to cover the end of the root and burnished carefully to it. The pin of the crown is pushed through this disc, and the crown having also a disc of 30-gauge gold burnished to adjoining surface, is placed in position with a little wax placed between the two discs of gold. The crown with the discs in position is now removed and invested, the wax removed and the discs soldered to the pin. This makes a very smooth-jointed serviceable crown, as perfect adaptation is secured and the intra-dental band strengthens the root and keeps the crown from rotating.

General Medical Miscellany.

VACCINATION IN ENGLAND.—The average fee for a vaccination in England is half-a-crown or sixty cents. This involves two visits, the filling up of a certificate, and the cost of the vaccine.—[Medical Times.

DEATH FROM LAUGHTER.—A man died in New Orleans a few days ago as a result from laughter. He was at the theatre, and began laughing so heartily that he lost control of himself and fell to the floor, dying in syncope. He had suffered for some time from valvular heart disease.—[Medical Record.

SURVIVAL FROM AN ELECTRIC SHOCK.—An employee of one of the underground trolley roads in this city apparently received a discharge of two thousand volts through his arms a few days ago and was not killed. He entered the conduit through a manhole in order to remedy some defect, but while climbing out after completing his task, accidentally placed both hands on the channel rail. He was instantly rendered unconscious and was picked up apparently dead, but soon revived and had only some severe burns on the hands to remind him of his carelessness. The full strength of the current was two thousand volts.—[Medical Record.

INCUBATION OF INFECTIOUS DISEASES.—It is so important for the general practitioner that he should be prepared at a moment's notice to state the usual period of incubation of the specific infectious diseases that the following table may be found of service. It is based on the exhaustive investigation of the committee appointed by the Clinical Society. For all practical purposes these diseases may be divided into two groups, viz.: those having a long period of incubation and those with a short one.

In the following table is given the usual, the shortest and the longest period of incubation:

I.—THE LONG GROUP.	Usual.	Shortest.	Longest.
Mumps.....	21 days	14 days	25 days
German Measles.....	18	5	21
Enteric Fever.....	12 to 14	5	23
Typhus.....	12 to 14	2	21
Varicella	14	13	19
Variola.....	12	9	15
Measles.....	10	4	14
II.—THE SHORT GROUP.			
Scarlet Fever.....	1 to 3	Less than 1	8
Erysipelas.....	1 to 4	Less than 1	?
Diphtheria	2 to 4	Few hours.	7
Influenza.....	3 or 4	One day.	4 or 5

—[The Dental Digest.

ARTIFICIAL ALBUMIN.—It is reported that a Dr. Lilienfeld, of Vienna, has discovered a process for making albumin artificially out of certain coal-tar products. He claims that it has all the properties of peptone, and that by means of it one can obtain albumin in sufficient quantity to support life at an expenditure of about eight cents per day. It occurs in form of a crown powder, and has a taste resembling egg albumin.—[Medical Record.

RESORCIN AS A LOCAL ANESTHETIC.—Resorcin as we all know, has the properties of an antiseptic, since it is a derivative of carbolic acid and possesses many of the powers of the latter. Its qualities as a local anesthetic, however, are of considerable interest. In cases of stomatitis there is great need of such a remedy, and the mucous membrane can be painted with a mixture of resorcin 5 parts, water 30 parts. On account of its less irritating properties, it is considered one of the best antiseptic agents to be employed in the oral cavity. In diphtheria or other diseases causing

a sloughing sore, no better results can be had than apply in a mixture of resorcin to the affected portion. It accomplishes all that can be expected of carbolic acid and does it in a painless manner. For dental ulcerations it can be used in the form of a liquid; in case it is to be used as a dressing for wounds it should be used in crystal form. —[Dental Digest.

FOREIGN BODIES IN THE AIR-PASSAGES.—Heller reports a number of serious cases in which prompt irrigation of the naso-pharyngeal space produced such efforts at expectorating or coughing that the foreign body was expelled at once and life saved. He urges all to try this simple measure before resorting to tracheotomy. —[Munich Med. Woch.

CHAPS AND FISSURES OF THE LIPS.—Prof. Hearn uses the following formula and states that when the condition does not readily yield to this treatment, epithelioma should be suspected in those past the middle of life.

R Hydrarg. oxid. flavi.....gr. iv
Balsam Peruvian.....gr. xx
Vasal ni.....oz. j

M. Sig.—Apply to the lips two or three times a day.

VOMITING OF SEASICKNESS.—

R Menthol.....gr. iss.
Cocaine hydrochlorate.....gr. iij.
Alcohol.....oz. ij.
Simple syrup.....oz. i.

S. oz. i. every half hour.

—[Dr. A. Morel-Lavallée.

SOME EXPERIMENTS WITH THE CELLULOID BANDAGE.—Dr. Augustus Thorndyke, of Boston, described two methods of making jackets out of celluloid. One consisted in painting on gauze bandages on a cast a varnish made by dissolving celluloid in acetone. The trouble with this plan was that many coats were required, and each coat shrank as it dried. He had found the second method very much better. Strips of thin celluloid, three or four inches wide and three yards long, were loosely rolled up like a bandage, and were then exposed to the vapor of acetone in a closed jar until soft. They were kept in these jars, and were applied to the cast or limb like ordinary roller bandages. They hardened in about twenty minutes, and a glossy finish might be given the jacket by a final coat of acetone or of acetone-celluloid

paste. This method would be found useful, particularly in making splints and jackets for children, as the material was not injured by wetting with perspiration or urine.—[Medical Record.

TO REMOVE A FOREIGN BODY FROM UNDER THE NAIL.—Alternately soften the nail with the end of a match dipped in caustic potash and scrape with a piece of glass until the object is reached.—[Journal de Med. de Paris.

TO NEUTRALIZE NICOTIN.—A German journal states that after a long search Prof. Gerold, of Halle, has found the means of neutralizing the action of nicotin in cigars. During the process of manufacture the leaves of tobacco are steeped in a decoction, the principal element of which is wild marjoram (*origanum vulgare*). Gerold claims that by this means the deleterious effects of tobacco are avoided, and yet the quality and aroma are not altered.

"DEATH TO CORNS."—

R.	Ext. of cannabis indica.....	I
	Salicylic acid	10
	Oil of turpentine.....	5
	Glacial acetic acid.....	2
	Cocaine (alkaloidal).....	2
	Collodion.....	q. s. ad 100
M.		

Apply a thin coating every night, putting each coating on top of the preceding one, until finally the whole drops off, bringing the indurated portion, and frequently the whole corn with it.—[National Druggist.

ECZEMA OF THE LIPS FROM A MOUTH-WASH.—A little boy of about six years had a squamous eczema about the mouth for some months. The upper and lower lips and chin were swollen, causing a very painful itching sensation. All the employed remedies failed until the boy was advised to omit his daily mouth wash, "odol." Recovery set in momentarily, showing that "odol" was the cause without doubt. Odol is a combination of salol, alcohol, saccharine, and various ethereal oils. Three similar cases came under the author's treatment. After the prohibition of the mouth-washes which contained ethereal oils in solution, the skin eruptions would heal spontaneously.—[A. Neiser, Therap. Monats.

ANTITOXIN INJECTED INTO THE BRAIN FOR LOCKJAW.—Nothing seems to daunt the attempts of science to ameliorate the ills which human flesh is heir to. As an example we will briefly describe an operation which was performed the early part of this month at Passaic, N. J. It is the first of its kind in this country and the eighth in the world. A young man fell through the window of an hotel and crashed through a glass skylight. The only serious injury was that a large piece of the calf of one of his legs was torn completely away by the glass. Preparations were made to amputate the leg, owing to the great danger of lockjaw, but, as the wound began to heal nicely, the operation was not performed. The danger of tetanus seemed over, but a few days later it suddenly developed. Tetanus antitoxin serum was injected into the body, but proved ineffectual, and the jaws remained firmly set. Despairing of the young man's life, the surgeons adopted heroic measures. The skull was trepanned on both sides, so as to expose both lobes of the brain, and the antitoxin was then directly injected into the brain tissue. Almost immediately there was a noticeable relaxation of the muscles and the improvement has since been steady. The patient is now able to masticate food in small quantities and his recovery seems almost certain.—[N. Y. correspondent in Dental Digest for October.]

Dental Excerpts.

IMPRESSION MATERIAL FROM WHICH A DIE MAY BE CAST STRAIGHT.—Plaster, 1 qt.; pumice stone, powdered, 1 pt.; chalk, 1 pt. Mix and use same as plaster.—[Den. Weekly.]

THE VASCULAR SUPPLY OF THE TOOTH-PULP.—The papers of Dr. J. L. Williams and his micro-photographs support the view held by some anatomists that the vascular supply of the tooth-pulp must come from the pericementum, and that preparations and cuts, representing the dental arteries as giving off branches which enter at the apical foramen of each tooth root, are a misrepresentation of the actual condition; the pericementum being in fact the placental organ

that supplies the tooth-pulp with nutriment in all cases. On the other hand Dr. M. H. Cryer's preparations lead to the belief that the old text-books were right. But nothing is yet conclusively proved. Dr. Williams must show that his preparations positively bear the interpretation given them by him; and Dr. Cryer must determine, by injection, that there is a direct communication of the dental pulp with the dental artery, before his deductions can be accepted as final. The subject is one that may well engage the attention of microscopists and anatomists during the coming year.—[Dr. W. C. Barrett.

LENGTH OF POSTS.—If the length of the post from the cap to the end of the post is equal to the distance between the cap and the tip of the highest cusp of the crown, the post is of sufficient length to withstand any strain, as there will be no chance for a leverage to be exerted in stress upon it.—[J. E. Nyman, Review.

A STUDY OF EUCAINE "B" IN STOMATOLOGY.—The results recently obtained with eucaine "B" in general surgery by Dr. Reclus, and communicated to the Academy of Medicine at its session of March 29th of this year, have led me to make important modifications in the use of that drug in stomatological work.

Instead of one per cent. I employ a two-per-cent. solution; this is absolutely free from danger, and permits operation to be undertaken very quickly. Analgesia sets in immediately, and there is no necessity of waiting for five minutes, as is the case of the weaker solution. This is no slight advantage for the patient. Further, we can operate in the upright position without the least fear of trouble, and we can allow our patient to walk out immediately after the work is done, which is not possible with cocaine.

The following points seem to me to be important enough to attract the attention of stomatologists: Without going into the technique that is to be followed in order to obtain analgesia, I will say that the injection of 1 cubic centimeter (17 minims) i. e., 2 centigrams or $\frac{1}{2}$ grain of eucaine "B" is sufficient in the majority of cases to permit the extraction of a large-sized molar without the patient suffering any

pain. If this dose should appear insufficient, there need be no hesitation in injecting a larger quantity of the anesthetic solution. Immediately after the injection is made the forceps can be taken and the tooth removed. Dr. Dumont and I have operated over sixty times by this method, and our patients have never experienced any pain.

To study any post-operative troubles that might appear, our patients were made to walk up and down in the yard of the hospital (la Pitie), immediately after the operation, for from five to eight minutes, at a moderate gait; then they are taken into the office and examined. We have never been able to find any change in their general condition, nor have we ever found them to show any anxiety and pallor which is seen after cocaine, and more especially after holocaine.

Our observations were made upon patients of both sexes and of all ages. Thus, in a child of 12 years we extracted the second great molar of the left side of the lower jaw, after having injected into both sides of the tooth $\frac{1}{4}$ cubic centimeter (4 minims) of the two-per-cent. solution of eucaine "B." The anesthesia was perfect and no trouble followed the operation.

We have done extractions upon hysterical women and nervous men without the occurrence of anything abnormal. In one young man, 22 years of age, we removed four roots at one sitting. Analgesia was obtained by injecting two syringefuls of the two per cent. solution, about 4 centigrams ($\frac{2}{3}$ grain) of eucaine. The patient, though seated, experienced no discomfort, and felt none after he had taken the short walk that we prescribed.—[Dr. A. Legrand in *Revue de Therapeutique*.

WHEN A FILLING SHOULD BE DISTINCT.—Whenever it becomes necessary for a filling to show at all it should be extended labially, so as to show distinctly. The reason for this is that where gold is placed between teeth in such a way that it is in the shadow, the appearance a few feet distant from the patient is that of a black mass simulating decay, while if the filling is carried out sufficiently to allow the rays of light to reflect upon it, the bright yellow tinge of gold is immediately perceptible.—[C. N. Johnson, *Cosmos*.

HOME-MADE MOLDINE.—Buy a brick of fine clay (get before sand has been added); pulverize it to a flour, then mix with glycerine to the proper consistency. This will make five dollars worth of moldine.—[S. Ewing Smith in *Dental Weekly*.]

METHODS OF HIDING SLIGHT CRACKS IN PORCELAIN FACINGS.—By some misfortune a slight crack may occur in a porcelain facing, and, while causing no weakness in the case, may be extremely unsightly; this can be perfectly and permanently hidden by simply immersing the case for fifteen minutes in liquid albolene. Upon taking it out, washing and drying it, the crack cannot be detected, and, under the moist condition of the mouth, it will never make its reappearance.—[J. E. Nyman, *Review*.]

RESTORING ENAMEL SURFACE TO PORCELAIN FACINGS AFTER GRINDING.—It is sometimes necessary, to obtain artistic effects, to grind the buccal surface of a porcelain facing. The enamel surface may be restored to a facing so ground by painting the surface with a thick solution of borax and water, and then heating the facing to the melting point of gold, or by painting the surface with liquid silex, letting it dry and then heating it to a point half-way between the fusing point of gold and that of Close's body.—[J. E. Nyman, *Review*.]

TO APPLY THE RUBBER-DAM.—In order to get the rubber-dam well up on the neck of the tooth, so as to obtain a clear view of the cervical margin of the cavity about to be filled, wrap a piece of dental floss or gilling thread twice around the tooth and push this well up on the neck of the tooth, then tie. Let this remain for a couple of days, and when the patient returns the application of the dam can be made with ease to the operator and with little discomfort to the patient, affording a perfect view of the parts to be operated on. Should there be a large space between the teeth, the interdental space *below the ligature* may be filled with cotton steeped in sandarac varnish, or with pink gutta-percha.—[T. F. Chupein, *Dental Office and Laboratory*.]

OXIDE OF ZINC AND EUGENOL.—Using a good article of zinc (Hubbock's) and as much of it as the eugenol will take up without becoming crumbly, a filling can be inserted that will last as long as the best cement. It is valuable as an intermediate stratum on the floor of deep cavities, and as a covering to dressings, especially where it is desirable to avoid pressure, and as a filling where a non-irritating thermal protector and antiseptic is desired. In proximal surfaces of molars and bicuspsids it shows no wasting for one, and, in some cases, two years.—[S. Blair Luckie, Items.

THE ACTION OF ARSENIC.—The precise nature of the the action of arsenic, especially in its application to the dental pulp, has never been demonstrated nor explained. That it causes death to the pulp by congestion and strangulation at the foraminal apex is shown to be an error by the fact that it is equally fatal to the pulp of a partially developed tooth with open apex, and the end completely patulous. Death, in consequence of the internal administration of arsenic, appears to be due to nervous shock, terminating in complete collapse, seeming to indicate some special dynamic energy. The minimum amount required for pulp devitalization, when directly applied, has not been definitely ascertained. A second application is a great mistake. If the tissue within the pulp chamber is found devitalized there is no question concerning that within the root canals. The sensitive point at the apex, so often encountered, is not vital pulp tissue, but is due to an intensely inflamed, irritable condition of the corpuscles of the cementum at the extremity of the root, due to the use of an unnecessarily large amount applied to the pulp, and left in the teeth too long. A second application may destroy the vitality of the apical cementum altogether and induce serious trouble. Instead of another application of the irritant poison, the contrary treatment should be inaugurated. Neutralize the arsenic by an application of dialyzed iron, and use soothing anodynes until all danger of further action of the poison has passed away. Then clean and fill the canal.—[Dr. W. C. Barrett.

CARBOLIC ACID POISONING.—Carbolic acid is so largely used in dental practice that the following remarks on carbolic acid poisoning should be interesting. The severity of the poisoning may be due (1) to the place from which the poison gains access to the blood, (2) to the quantity taken, and (3) to the concentration. Many cases of fatal poisoning have been recorded where a non-lethal dose has been injected into the rectum for purposes of treatment. Death has been known to occur after a dose of 6 g. taken by the mouth, and recovery has insured after dose of 30 or 35 g.; in the latter case the carbolic acid was dissolved in alcohol, which would favor its absorption into the blood. Even 120 g. of raw carbolic acid has been taken and recovery insured. One g. of carbolic acid, the amount found in the suspected case, could not produce death. The author found that when animals were poisoned with concentrated or weak solutions of carbolic acid, and this was allowed to remain in the stomach after death, appreciable quantities could pass out through the stomach walls into the abdominal cavity. Death may sometimes be produced without the poison entering the blood in a so-called reflex fashion. As regards the action of carbolic acid on the mucous membranes, 1-per-cent. produces no change, and a 2-per-cent. a slight color change to be seen only on careful examination. At 4-or 5-per cent. produces a white discoloration, which disappears in the living subject in three or four hours. Fluid 90 per cent., or the crystalline substance, calls forth a white slough upon every tissue of the body, whether applied pure or in water. The symptoms produced by carbolic acid vary: (1) If a concentrated solution (60 to 90 per cent.) is drunk, the patient may die rapidly with or without previous vomiting, or he may become comatose with stertorous breathing, slow pulse, vomiting, etc., from which he may die or recover; (2) if weak solutions (1 to 3 per cent.) are taken, there may be prostration, unconsciousness, spasm, vomiting, etc. When weak solutions are taken into the stomach the symptoms develop slowly, giving time for treatment.—[Deut. Med. Wochenschrift.

A QUICK METHOD OF MAKING TEMPORARY CROWNS.—Dr. J. H. Kennerly uses an ordinary rubber tooth, to which is soldered a wire, the crown being contoured and retained by means of gutta-percha. —[Dental Digest.

BROKEN-DOWN POSTERIOR TEETH.—When molars are so broken-down that the rubber-dam cannot be adjusted for root-canal treatment, prepare the cavity as if for permanent filling; fill the pulp-chamber with temporary stopping as far as occlusion will permit; build a wall of amalgam around this. At a subsequent sitting remove the temporary stopping and proceed with treatment. —[R. B. Gentle, Indiana Dental Journal.

CHEAP METHOD OF RESTORING MOLAR WHERE ONLY ONE WALL REMAINS.—Make a silver band of as thin plate as it can conveniently be made, and the size you desire the tooth when finished. After removing all decay and burying anchorages in the roots, place the band in the desired position and fill and build up with amalgam, after which have the patient close with natural bite to form cusps. If carefully finished after the amalgam becomes hard the silver band is not noticeable, and you will have a very substantial and satisfactory restoration. —[Dr. A. H. Mories.

NITRATE OF SILVER IN DENTISTRY.—The convenient use of argent. nit. was made possible when Dr. Kirk suggested in the *Cosmos* the saturation of asbestos fibre with an aqueous solution of the salt. Three years ago I acted on this suggestion, which has made nitrate of silver extremely satisfactory and successful in my practice.

The preparation is made by taking of

Argent. nit. 40 grs.
Aq. dest., 1 dr.

Reduce the silver to powder and triturate with water in a Wedgwood mortar. Now take asbestos fibre, bit by bit, in a pair of tweezers, and pass through the flame of an alcohol lamp, to burn out any organic matter that may be present. Place each bit of asbestos in the solution and repeat it till sufficient has been added, so that the whole is nicely moist without leaving any excess of solution. Transfer to a wide-mouth bottle, preferably with a glass stopper.

For the penetrating power of the nitrate of silver I refer the reader to an article which recently appeared in the *Cosmos*, "The Relative Penetrating Power of Coagulants," where it will be seen that argent. nit. stands high in the list.

Its extraordinary penetrating power must be kept in mind; though experience has taught me that it must be kept in close contact with the pulp to destroy it, and in the cases in which I have used it I have had no reason to think that any harm has followed its application.

If we are to save the teeth of children, this preparation must play a part. It is easily applied to incipient decay, by being carried there on an excavator, and it may be applied to deeper cavities, where, if it cause pain, the application of a fine creasote is the immediate remedy. It is not here urged as a substitute for filling temporary teeth; but in conjunction with other remedies, local and systemic, it will work its wonders, as is generally known. The effects of the first application will be a blackening of the part to which it is applied; but a second and third application at subsequent visits will be all that is necessary to arrest decay, and all that can be done for the salvation of the temporary teeth from nitrate of silver as a remedy.

Another important use is its power of closing up the gaping ends of the dental fibrillæ at the gum-line, where the cementum has been worn off, leaving them exposed. These sensitive parts should be dried and the fibre applied, and left in contact for a few minutes. The stinging pain caused soon subsides, and the part may be burnished with a steel burnisher rotated in the engine.

The preparation is again useful as a diagnostic agent in molars. It is of great importance to know just exactly whether the pulp is far off, or nearly encroached upon. With a little practice this can be ascertained to a nicety. The cavity nearly prepared for the filling apply the fibre. While it is there the filling-material may be got ready. If there is not any sensation of pain produced, that cavity will take a metal filling without a non-conductor. If, however, the cavity is a very deep one, no pain from the application will indicate a dead pulp.

If, after an interval of a minute or two, the patient, pre-

viously warned, reports slight pain, the operator is assured that the pulp is not far off, and will be best conserved by lining the cavity. If, however, pain is felt immediately the fibre is placed in the cavity, its immediate removal is demanded, and creasote or oil of cloves demanded to relieve the pain. In this case capping or destruction of the pulp is indicated. Argent. nit. used in this way saves an enormous amount of the operator's time in that an exact condition of the tooth is readily known.

In dead teeth the fibre has been employed most satisfactorily after the repeated application of the essential oils with aristol. It is easily carried to the end of the canal, and its penetrating power, I think, accounts for its value. Having used it frequently in this capacity it has never given rise to pericemental irritation. Applied carefully to the root-ends of even incisors, and followed up with a gutta-percha cone, no discoloration of the tooth-neck has ever occurred.

In mouths where the exciting cause of caries is present, and fresh "chalky" cavities are constantly forming, the nitrate of silver will give surprising results. The fibre may be left in shallow cavities while others are being excavated. When removed the inside of the cavity will present a yellow color, gradually changing to black, and a distinct hardening of the dentine. So treated, the dreaded recurrence of decay in these teeth does not take place.

It is supposed that oxide of silver is deposited wherever the salt penetrates and blackens.—[W. Theo. Shanasy, in Australian Journal of Dentistry.

HOW TO SET CROWNS AND BRIDGES SO THAT THEY MAY BE READILY REMOVED.—The post (which should be unnotched and tapered) and the underside of the cap is coated with a film of thin sandarac varnish; this is allowed to thoroughly harden, and the crown is then set with cement, as usual. This thin film of varnish, while in no wise lessening the security of attachment, upon heating, softens and breaks the adhesion of the post and with the cement, allowing the crown or bridge to be readily removed.—[J. E. Nyman, Review.

ADD POTASSIUM SULPHATE TO INVESTING PLASTER.—Plaster investments, with potassium sulphate added, stand high temperature with less cracking than investments without it.—[J. E. Nyman, Review.

TO REPAIR BROKEN CASTS.—Broken plaster teeth or casts can be made stronger at the point mended than at any other by using a rather stiff solution of shellac upon the fractured surfaces, repeatedly burning it off until it is no longer taken up by the plaster; then heat surfaces and press together. Try this plan you will use no other.—[Western Dental Journal.

CAUTION IN USING WHITE RUBBER.—In packing white rubber between teeth which are fit on to the natural gum, do not let it come in contact with the pins of the teeth. The white rubber is one of the softest rubbers, and if vulcanized round the pins, the teeth will be more liable to be forced out than if red or any other hard rubber envelops the pins.—[F. Mackenzie, British Journal.

CLEANSING INSTRUMENTS OF CEMENT.—In an article recently published I suggested a method of detaching a pin cemented to a root or to a pivot crown, by the use of a strong alkali—aqua ammonia—to produce disintegration of the oxyphosphate of zinc. I use the same alkali to clean my spatulas and pluggers after filling with this cement. Remove what you can otherwise and then dip the instrument into the aqua ammonia, and afterwards rinse and wipe dry.—[W. B. Mean in Items.

HOW TO HANDLE AN INSTRUMENT WHILE TEMPERING.—In tempering in oil or water, always dip the instrument perpendicularly. If dipped on a slant, it is liable to cause the instrument to spring, especially if the bath is very cold. When tempering light work, the instrument must be handled quickly, for the edge where the best temper is required is the smallest part and cools first, often rendering the temper defective just where it should be most perfect.—[W. H. Steele in Items of Interest.

Pacific Medico-Dental Gazette.

A MONTHLY MAGAZINE OF
DENTISTRY, ORAL SURGERY AND
MEDICAL MISCELLANY.

FRANK L. PLATT, D.D.S., EDITOR.

Editorial.

THE WORKERS AND THE DRONES.

It seems to have been ordained by an all-wise providence that throughout all the different divisions of the animal kingdom there should be certain creatures who live largely without labor, and derive their sustenance from the exertions of their more active and industrious brethren without making any adequate recompense for what they receive.

That the highest order of the animal kingdom, man himself, presents no exception to this rule is a conceded fact requiring no demonstration, though why this should be the rule rather than the exception is a question with which philosophers have vainly struggled for many centuries, and which we will not attempt to answer. We simply want to ask another question: Why is it that out of so many men belonging to the medical and dental professions so few contribute to the literary wealth of the profession they are supposed to represent and help support? It may not have occurred to many of our professional brethren, but it is a fact that the contributors to our journals are doing more to promote the progress and prosperity of medicine and dentistry and educate the rank and file of the followers of these two callings than any other factors connected with them, the colleges not excepted; and when it is remembered that in the vast majority of cases no pay is received by the authors of published papers, that they are contributed purely from feelings of professional pride and philanthropy, it should bring the blush of shame to the cheeks of many a competent man who is continually receiv-

ing the best points of the labor of others, and yet gives nothing in return.

The universal law of nature referred to above cannot be offered as a logical excuse; the fault lies somewhere else. If it is in lack of ability let him who admits it follow some other calling; if it is in lack of education, let the colleges be held responsible for admitting and graduating illiterate, incompetent students; if it lies simply in a wanton lack of *esprit du corps*, let our educational methods be so changed that students in our colleges and offices may be led to believe they owe a debt of gratitude to their instructors they can repay only by giving to others as freely as has been given to them. Let some change be made, we care not what it is, by which this labor may be more equally divided; by which the latent energy and ability of the non-workers may be aroused to action, and within another decade we may hope to see the literary wealth of our professions grow in a degree somewhat commensurate with the vast possibilities opening every day to the view of the student and investigator.

BOOK REVIEW.

HARRIS' DICTIONARY OF DENTISTRY A Dictionary of Dental Science and such words and phrases of the collateral sciences as pertain to the art and practice of dentistry. By Chapin A. Harris, M.D., D.D.S., late professor of the Principles of Dental Surgery in the Baltimore College, member of the American Medical Association, etc. Sixth edition; carefully revised and enlarged by Ferdinand J. S. Gorgas, M.D., D.D.S., author of "Dental Medicine," editor of "Harris' Principles and Practice of Dentistry," professor of Principles of Dental Science, Oral Surgery and Prosthetic Dentistry in the University of Maryland. P. Blakiston, Son & Co., Publishers.

The previous editions of this work are so well and favorably known that no lengthy notice is needed to call the attention of the dental profession to this sixth edition but we wish to note particularly the fact that in the seven years which have passed since the appearance of the fifth edition a great many new words have been introduced into the medical and dental professions, which, with the names of

new materials, apparatus and methods, have all been included in this volume, and constitute a valuable edition to previous editions of the work. This is the only work of the kind in existence, and should be indispensable to every dentist. Great care has been exercised in its compilation, and the errors of previous editions corrected; it is up-to-date, and we heartily commend it to the members of both the medical and dental professions.

21,000 MEDICAL WORDS PRONOUNCED AND DEFINED. Gould. Complete new edition. A Pocket Medical Dictionary giving the pronunciation and definition of the principal words used in medicine and the collateral sciences, including very complete tables of the arteries, muscles, nerves, bacteria, bacilli, micrococci, spirilli, and thermometric scales, and a close list of drugs and their preparations in both the English and metric system of weights and measures, by George M. Gould, A.M., M.D., author of the "Illustrated Medical Dictionary," "The Students' Medical Dictionary," editor of the Philadelphia Medical Journal; president, 1893-94 of the American Academy of Medicine. A new edition, entirely rewritten and enlarged, including over 21,000 words. P. Blakiston, Son & Co. publishers, Philadelphia, Pa.

This work contains a vast amount of valuable information for the physician or dentist who happily has formed the habit of consulting his dictionary whenever his memory or knowledge fails him, and we feel certain will prove both popular and useful to members of both professions. The work has been entirely rewritten and enlarged, and contains nearly double the number of words lately added to the vocabulary of medical science. The tables embraced in the work and mentioned in the title will certainly prove useful, and the small size of the volume, making it convenient for the pocket or desk, should make it a constant companion of the studious, wide-awake practitioner.

THE TRANSACTIONS OF THE CALIFORNIA STATE DENTAL ASSOCIATION, Twenty-seventh Annual Session, held at San Jose, commencing June 21, 1898. San Francisco, Miles L. Farland, printer and publisher.

In this report, just issued from the press, is given to the profession the latest volume of California dental history so far as the State Association is concerned. It will prove

interesting and valuable reading to all those interested in the advance work of our profession. The typographical appearance of the volume is excellent, and demonstrates the care and attention given the work by the publisher.

PERSONAL.

DR. O. P. FITCH has returned to Placerville.

DR. H. C. MASSIE, of this city, is visiting friends in Missouri.

DR. M. THOMAS, of Fresno, has joined the ranks of the "benedicts."

DR. J. W. WELCH has left Oregon City to practice in Costa Rica.

DR. E. H. DAVIS of Ashland, Ore., has left for Guatamala with the intention of locating.

DR. C. D. LUEDKE has returned to Oroville after an eight-weeks' visit in Healdsburg.

DR. W. C. GROVE and wife, of Modesto, made a short visit to this city during November.

STATE DENTAL LAW COMMITTEE.

To Members of Committee on State Dental Law Amendment :

At the last meeting of the California State Dental Association it was unanimously concluded that some changes were needed in our present State dental law and a committee, previously organized, reported the matter and after organization adjourned to meet at the call of the chairman.

Such meeting is now called to meet at the rooms of the San Francisco Dental Association, Y. M. C. A. Building,

corner of Ellis and Mason streets, Monday evening December 19, 1898, at eight o'clock.

All dental societies and colleges in the State are requested to be represented at this meeting, and in accordance with the original organization of the committee each dental organization in the State having twenty active members or less is entitled to one delegate; and each association of more than twenty members is entitled to one delegate for each twenty members. Respectfully,

J. L. ASAY, Chairman.

Laughing Gas.

PHYSICIAN.—You are living too high.

Patient.—That's so. I've got to get a cheaper doctor.

A MEAN TRICK.—“What's the row over at the museum.”

“A fake dentist sold the fire-eater a set of celluloid teeth.”—[Puck.

PATIENT—What are you treating me for, Doctor?

Doctor.—Loss of memory. You have owed me a bill for over two years.

PATIENT.—What do you find the most common delusion among your patients, doctor?

The Dentist.—That we dentists care nothing about having our bills paid.

STUBBLY.—I don't believe in that young doctor.

Nurse.—Why not?

Stubbly.—Well, the medicine he gives doesn't taste bad enough to do any good.—[Boston Globe.

HARTY—“Good many years since we've seen each other Jack. Remember how we used to live from hand-to-mouth in college?”

Jack — “Yes, that's still the case with me.”

Harty — “How so?”

Jack — “I'm a dentist.”—[Boston Courier.

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